APPENDIX B

Primary Inventory Sites within the Black River State Forest

The ecologically significant sites identified through the WDNR-BER inventory are depicted on Figure 37 and described in the following narratives. Each site contains documented, significant occurrences of rare and/or representative natural features of the Central Sands landscape. Most sites are within the *Central Wisconsin Sand Plain* ecoregion (subsection 222Ra[1]). Sites that are outside of this subsection include East Fork Pines (BR01) and Lichtner Road Peatlands (BR07), that are within the *Neillsville Sandstone Plateau* (222Rb), and Millston Ridge (BR33) that is within the *Melrose Oak Forest and Savanna* (222Lb) subsection. The communities, aquatic features and rare species populations identified herein will give agency planners, managers, and the public the opportunity to make informed decisions on appropriate protection and management (land use classification and designation) in the new property master plan and other planning efforts. Restoration potential for features that are now absent, substantially diminished, or isolated are discussed along with additional opportunities for management and protection of significant resources on lands adjoining the property.

Table of Sites

[1] Appendix L describes the ecoregions of the study area

BR01. EAST FORK OF THE BLACK RIVER

Location

USGS 7.5' Quadrangle:	Hatfield
Town-Range-Section:	T22N-R2W, parts of sections 4, 5, and 6
	T23N-R2W, parts of sections 31 and 32
Approximate Size:	384 ac.

Description of Site

The site borders the lower stretches of the East Fork of the Black River just before it reaches its confluence with the Black River at Lake Arbutus, an impoundment created by the Hatfield Dam. The primary features include the East Fork proper, and a series of ridges and swales that parallel the river on its south side. The ridges support mature dry-mesic forest of pine and oak. The swales contain a variety of wetland communities, including white pine-red maple swamp, tamarack swamp, northern sedge meadow, and alder thicket. Rare plants and animals are resident here, and the diversity of northern animals is significant. Among the latter are Pine, Black-throated Green, Blackburnian, Nashville, Golden-winged, and Canada Warblers, Hermit Thrush, Veery, and Northern Raven.

The East Fork is at the southern extremity of the Canadian Shield. Bottom materials include boulders, cobbles, and gravel. Outcroppings of pre-Cambrian granitic bedrock occur along the shores. Aquatic life is diverse and includes several rare invertebrates. For additional information on the East Fork of the Black River see Appendix F.

Significance of Site

This is one of the longest stretches of undammed, essentially undeveloped river corridors in the southern 2/3 of Wisconsin. It contains a biologically significant mosaic of terrestrial, palustrine, and aquatic communities. A number of rare plants (bog fern, long sedge, yellow screwstem), birds (Cerulean Warbler, Red-shouldered Hawk), and invertebrates occur here. Several river stretches to the east of the State Forest boundary, each several miles long, lack any permanent or seasonal dwellings, or other developments.

Management Considerations

Primary considerations include maintaining water quality and quantity, extending protection of the river corridor above the eastern boundary of the State Forest. East fork upstream, allowing for the development of old-growth features and high canopy closure throughout the forests, and ensuring that the management of adjoining lands is compatible with retaining the features present. The site should be periodically monitored for the presence of invasive species, especially glossy buckthorn and garlic mustard.

BR01 - East Fork of the Black River Element Occurrences

Scientific Name	Common Name	Date	State Rank	Global Rank	WI Status
Animals					
Buteo lineatus	red-shouldered hawk	2001	S1N,S3S4B	G5	THR
Cymbiodyta acuminata	a water scavenger beetle	1997	S3	G?	SC/N
Dendroica cerulea	cerulean warbler	2001	S2S3B,SZN	G4	THR
Gomphurus lineatifrons	splendid clubtail	1997	S3	G4	SC/N
Gomphus viridifrons	green-faced clubtail	1997	S3	G3	SC/N
Hemidactylium scutatum	four-toed salamander	1998	S3	G5	SC/H

Scientific Name	Common Name	Date	State Rank	Global Rank	WI Status
Neurocordulia yamaskanensis	stygian shadowfly	1997	S3	G5	SC/N
Paradamoetas fontana	a jumping spider	1997	S?	G?	SC/N
Somatochlora incurvata	warpaint emerald	1997	S2	G4	END
Sorex arcticus	arctic shrew	1997	S2	G5	SC/N
Sorex hoyi	pigmy shrew	1997	S3	G5	SC/N
Plants					
Carex folliculata	long sedge	1997	S3	G4G5	SC
Thelypteris simulata	bog fern	1997	S3	G4G5	SC
Communities					
central sands pine-oak forest	central sands pine-oak forest	1997	S3	G3	NA
white pine-red maple swamp	white pine-red maple swamp	1981	S2	G3G4	NA

UPPER BLACK RIVER MACROSITE

Sites Included

- Upper Black River
- Morrison Creek Gorge
- Valentine Creek Pines
- Dickey Creek Gorge

Description of Macrosite

Site Description: This stretch of the Black River runs from the Hatfield Dam at Lake Arbutus south to the city of Black River Falls. Major streamside features include low terraces vegetated with floodplain forest or black ash swamp, slightly higher terraces supporting rich mesic hardwood forest, steep bluffs clad in dry-mesic forest of pine and oak, and numerous microsites containing sandstone cliffs, coves, and numerous spring seeps and spring runs. This site includes the sole documented occurrence of eastern hemlock within the study area.

Other notable features included here are the lower portions of the Morrison, Hall's, Dickey, and Valentine Creek gorges. Each of these gorges contains older dry-mesic forests of white and red pine, sandstone cliffs, and small streams that provide habitat for diverse aquatic communities. The Morrison Creek system (including its tributaries) is especially noteworthy for its aquatic biota (see Appendix F for additional information on Morrison Creek).

An area of perched ridge and swale topography in the southwestern portion of the site supports sedge meadow, tamarack swamp, and white pine-red maple swamp, grading to dry-mesic oak or mixed white pine-oak forest on the higher ridges. A perched swale west of the Black River and north of the mouth of Hall's Creek contains a stand of mature tamarack.

Significance of Macrosite

This site is relatively large (ca. 2600 acres), contains an extensive area of mature forest, encompasses a diverse community mosaic, supports significant aquatic biota, and is home to many rare species. Some of the latter are area-sensitive, and a subset of these are restricted to "southern" habitats (such as mesic maple-basswood forest, or silver maple-green ash-river birch floodplain forest), which are rare and very localized elsewhere within the study area. Another subset of the rare species present consists of habitat specialists. These occur primarily on cliffs, in seepages, or in association with the high gradient drainages running through sandstone coves. The third group is made up of aquatic species, and the fourth consists of species found primarily in northern Wisconsin.

Management Considerations

Key considerations include the maintenance and protection of a substantial area of forest with high canopy closure, allowing for the development of old-growth forest characteristics, protection of hydrology, and protection of water quality and water quantity. Management of surrounding lands should avoid isolating forested areas and diminish high contrast edge. Opportunities to increase protection along this stretch of forested river corridor and its tributaries should be taken advantage of wherever possible, including expansion of the state forest boundary. Construction of roads or other rights-of-way through the terraced floodplain or across steep sandy slopes should be minimized.

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BR02. UPPER BLACK RIVER

(Upper Black River Macrosite)

Location

USGS 7.5' Quadrangle:	Black River Falls, Hatfield, Merrillan
Town-Range-Section:	T21N-R4W, part of sections 1
	T22N-R3W, parts of sections 9, 10, 16, 17, 19, 20, 21, and 28-32
	T22N-R4W, parts of sections 36
Approximate Size:	1846 ac.

Description of Site

This portion of the macrosite borders the Black River and includes areas within the river's floodplain as well as the adjoining bluffs. Among the more extensive natural communities that comprise the diverse vegetation mosaic of this site are Floodplain Forest, Southern Mesic Forest, Northern Dry-mesic Forest and Southern Dry-mesic Forest. Small patch community types that are important here include Dry Cliff, Moist Cliff, Forested Seep, Hemlock Relict, and Alder Thicket. There are also very small patches of fen-like vegetation. Seepages are frequent and outcroppings of Cambrian sandstone are prominent in some areas.

Significant natural features are also associated with several of the valleys created by tributary streams that enter this stretch of the Black. See site descriptions for "Morrison Creek Gorge," "Valentine Creek Pines," and Hall's Creek Gorge" that follow this narrative.

The Black River is affected by operations of the dam that created Lake Arbutus just above the upstream end of the site. There is also a dam at Black River Falls, several miles below the site. A large sand and gravel quarry is located on the west side of the Black River, just above the confluence with Hall's Creek. The nearly level sandy uplands away from the river bluffs are mostly forested and are actively managed for forest products. Important commercial species include jack pine, white pine, red pine, and oaks.

Significance of Site

Intact and important examples of several natural communities occur here, including types that are rare or restricted elsewhere in the study area. Among the latter are Floodplain Forest and Southern Mesic Forest, communities that do not occur away from large rivers. These communities in turn support a large number of rare species, including habitat specialists that are not present in other community types and exist at few other locations within the landscape.

Management Considerations

This site could serve as a core area of lands that would feature a relatively extensive acreage of older, intact, connected forest. Numerous sensitive species would benefit from this management emphasis. Timber sales on lands bordering this site could be designed to maintain large blocks of forest that would retain core areas of older forest, protect sensitive drainages, and focus on types that are native to the landscape.

Additional protection is desirable for lands along the river above and below this site. The sand and gravel quarry should be protected as soon as mining ceases. Impacts of operations of the dams on this stretch of the Black should be reviewed, and if improvements are feasible, they should be implemented.

BR02 - Upper Black River Element Occurrences

Scientific Name	Common Name	Date	State Rank	Global Rank	WI Status	US ESA Status
Animals						
Aeshna tuberculifera	black-tipped darner	1997	S3	G4	SC/N	
Alasmidonta marginata	elktoe	1997	S4	G4	SC/H	
Atrytonopsis hianna	dusted skipper	1997	S2?	G4G5	SC/N	
Buteo lineatus	Red-shouldered Hawk	1997	S1N,S3S4B	G5	THR	
Chromagrion conditum	aurora damselfly	1993	S3	G5	SC/N	
Cicindela patruela huberi	a tiger beetle	1997	S3	G3T2	SC/N	
Clemmys insculpta	wood turtle	1979	S3	G4	THR	
Cyclonaias tuberculata	purple wartyback	1997	S1	G5	END	
Dendroica cerulea	Cerulean Warbler	2001	S2S3B,SZN	G4	THR	
Empidonax virescens	Acadian Flycatcher	1997	S2S3B,SZN	G5	THR	
Gomphurus lineatifrons	splendid clubtail	1997	S3	G4	SC/N	
Gomphurus ventricosus	skillet clubtail	1997	S3	G3	SC/N	
Gomphus viridifrons	green-faced clubtail	1997	S3	G3	SC/N	
Lycaeides melissa samuelis	Karner blue butterfly	1998	S2S3	G5T2	SC/FL	LE
Neurocordulia yamaskanensis	stygian shadowfly	1997	S3	G5	SC/N	
Ophiogomphus sp 1 nr *aspersus*	barrens snaketail	1997	S2	G2	SC/N	
Oporornis formosus	Kentucky Warbler	1997	S2B,SZN	G5	THR	
Percina evides	gilt darter	1979	S2	G4	THR	
Protonotaria citrea	Prothonotary Warbler	2001	S3B,SZN	G5	SC/M	
Sperchopsis tessellatus	a water scavenging beetle	1997	S2S3	G?	SC/N	
Stylurus notatus	elusive clubtail	1993	S2S3	G3	SC/N	
Stylurus scudderi	zebra clubtail	1997	S3	G4	SC/N	
Plants						
Asclepias ovalifolia	dwarf milkweed	1997	S3	G5?	THR	
Bartonia virginica	yellow screwstem	1997	S3	G5	SC	
Carex assiniboinensis	assiniboine sedge	1997	S3	G4G5	SC	
Carex straminea	straw sedge	1947	S1	G5	SC	
Lycopodium porophilum	rock clubmoss	1997	S3	G4	SC	
Poa paludigena	bog bluegrass	1997	S2S3	G3	THR	
Salix sericea	silky willow	1933	S1	G5	SC	
Thelypteris simulata	bog fern	1997	S3	G4G5	SC	
Communities						
Calcareous fen	calcareous fen	1997	S3	G3	NA	
dry cliff	dry cliff	1982	S4		NA	
Floodplain forest	floodplain forest	1997	S3	G3?	NA	
forested seep	forested seep	1997	S2		NA	
hemlock relict	hemlock relict	1997	S2	G2Q	NA	
moist cliff	moist cliff	1997	S4		NA	
northern dry-mesic forest	northern dry-mesic forest	1997	S3	G4	NA	
pine barrens	pine barrens	1982	S2	G2	NA	
southern dry-mesic forest	southern dry-mesic forest	1997	S3	G4	NA	
southern mesic forest	southern mesic forest	1997	S3	G3?	NA	
tamarack (poor) swamp	tamarack (poor) swamp	1997	S3	G4	NA	

BR03. MORRISON CREEK

(Upper Black River Macrosite)

Location

USGS 7.5' Quadrangle: Black River Falls, Hatfield, Hatfield SW

Town-Range-Section: T22N-R3W, parts of sections 15, 21, 22, and 28

Approximate Size: 522 ac.

Description of Site

This site consists of two communities. Morrison Creek itself is classified as a "Stream – Fast, Soft, Warm" from a short distance west of Oxbow Pond, west to the outlet of its gorge a short distance east of the Black River. It is a second order stream that flows through a 2-3 mile long, steep-walled gorge of Cambrian sandstone. The stream gradient is steep, and the bottom has cobbles, boulders, gravel, and sand. Seepages occur beneath or between some of the sandstone cliffs flanking the river. The valley of the gorge is occupied by a mature Northern Dry-Mesic Forest composed of white pine, red pine, white oak, and red oak, with some basswood, red maple, and yellow birch in more mesic sites (such as below moist shaded cliffs). The forest understory is dominated by bracken fern, blueberry species, Canada mayflower, and whorled loosestrife. There are also small patch communities (seeps) dominated by skunk cabbage, and local areas of wet-mesic White Pine - Red Maple Swamps. The major use of the surrounding uplands is for commercial forestry. The vast former barrens to the north of the gorge were recently clearcut and partially planted to red pine. Northern bird species such as Red-breasted Nuthatch, Pine Warbler, Hermit Thrush Blackburnian Warbler, Black-throated Green Warbler, and Northern Raven are present in the older, conifer-dominated forest.

Significance of Site

This is a high quality example of an uncommon stream type. There are significant species records and community microsites. There has been no recent cutting in the forest, and some patches may never have been cut. Cliff clubmoss and Hooker's orchid are known from historical records at this site, but were not relocated.

Management Considerations

Both the stream and the associated cliffs and forests are notable and should be considered for strong protection in the new property management plan. Protection of water quality and quantity are of paramount importance. Timber sales on the uplands above the gorge should be designed to maintain as much of the site within a forested context as is feasible and ecologically appropriate. This site is contiguous with the "Upper Black River" site described in the preceding text and should be managed compatibly with it.

BR03 - Morrison Creek Element Occurrences

Scientific Name	Common Name	Date	State Rank	Global Rank	WI Status	US ESA Status
Animals						
Atrytonopsis hianna	dusted skipper	1997	S2?	G4G5	SC/N	
Cicindela patruela huberi	a tiger beetle	1999	S3	G3T2	SC/N	
Lycaeides melissa samuelis	Karner blue butterfly	1997	S2S3	G5T2	SC/FL	LE
Neurocordulia yamaskanensis	stygian shadowfly	1997	S3	G5	SC/N	
Ophiogomphus sp 1 nr aspersus	barrens snaketail	1997	S2	G2	SC/N	
Soyedina vallicularia	a stonefly	1997	S1	G5	SC/N	
Stylurus scudderi	zebra clubtail	1997	S3	G4	SC/N	
Plants						

Scientific Name	Common Name	Date	State Rank	Global Rank	WI Status	US ESA Status
Carex folliculata	long sedge	1997	S3	G4G5	SC	
Lycopodium Porophilum	rock clubmoss	1947	S3	G4	SC	
Platanthera hookeri	hooker orchis	1947	S3	G5	SC	
Thelypteris simulata	bog fern	1997	S3	G4G5	SC	
Communities						
dry cliff	dry cliff	1982	S4		NA	
moist cliff	moist cliff	1982	S4		NA	
northern dry-mesic forest	northern dry-mesic forest	1997	S3	G4	NA	
pine barrens	pine barrens	1982	S2	G2	NA	
stream—fast, soft, warm	stream--fast, soft, warm	1997	SU		NA	

BR04. VALENTINE CREEK PINES

(Upper Black River Macrosite)

Location

USGS 7.5' Quadrangle:	Hatfield SW, Black River Falls
Town-Range-Section:	T22N-R3W, sections 27 and 28
Approximate Size:	115 ac.

Description of Site

The steep slopes of this narrow sandy gorge feature a mature dry-mesic forest composed of large white pine and red maple. Other characteristic species include are red oak, paper birch, bracken fern, Canada mayflower, wintergreen, and early blueberry. Upper slopes support a dense layer of shrubs and saplings, especially hazelnut, cherries, white pine, and red maple. The slopes down to the bottom of the gorge vary from nearly vertical, with slumping banks, to gentle. Small, nearly level terraces occur on the inside bends of meanders and oxbows. Resident birdlife includes species more commonly found in the northern forests, such as Pine Warbler, Black-throated Green Warbler, Red-breasted Nuthatch, and Hermit Thrush. Louisiana Waterthrush, a bird that nests along high gradient streams bordered by forest, has been found along Valentine Creek in the past.

The gorge opens to the floodplain of the Black River. Numerous additional high quality natural communities and many rare species have been documented here. See "Upper Black River" and "Morrison Creek Gorge" for details.

The level uplands above the gorge are managed for forest products, with jack pine, oaks, and plantation-grown red pine among the important cover types. Sandy roadsides in the area support some native prairie species (including wild lupine and prairie phlox). The Ho Chunk tribe owns adjoining land just to the west, which includes a small settlement.

Significance of Site

The deep gorge contains a somewhat linear stand of mature dry-mesic forest composed of large white pine, red pine, red maple, and black/Hill's oak. Canopy closure is high and regionally uncommon birds more typical of northern Wisconsin's conifer forests are among the summer residents. The gorge opens into the floodplain of Morrison Creek, less than ½ mile east of that stream's junction with the Black River.

Management Considerations

The gorge and its pine forest warrant strong protection owing to the maturity of the forest, the uncommon species it supports, and its connection to the Morrison Creek Gorge and Upper Black River sites. The steep slopes are highly erodible and need protection from damage to ensure maintenance of water quality. There is potential for expansion and improvement of the pine forest community by allowing for the development of mature forest characteristics on the adjoining lands, and minimizing the creation of high contrast edge in the managed forest around the gorge. Presently the upland flats are managed intensively for forest products. Illegal garbage dumping is a problem that needs to be addressed.

BR04 - Valentine Creek Pines Element Occurrences

Scientific Name	Common Name	Date	State Rank	Global Rank	WI Status
Communities					
dry cliff	dry cliff	1982	S4		NA
moist cliff	moist cliff	1982	S4		NA
northern dry-mesic forest	northern dry-mesic forest	1997	S3	G4	NA
pine barrens	pine barrens	1982	S2	G2	NA
stream—fast, soft, warm	stream--fast, soft, warm	1997	SU		NA

BR05. DICKEY CREEK GORGE

(Upper Black River Macrosite)

Location

USGS 7.5' Quadrangle: Hatfield SW, Black River Falls

Town-Range-Section: T22N-R3W, sections 28, 29, and 33

Approximate Size: 134 ac.

Description of Site

The steep sandy slopes along the corridor of Dickey Creek support a mature second-growth Northern Dry-Mesic Forest. White pine is the dominant tree, with some large individuals exceeding 20" d.b.h. present. Associates include red pine, red maple, black/Hill's oak, and paper birch. Slopes above Dickey Creek vary from nearly vertical, with slumping sandy or clay-shale slopes, to almost level terraces on the inside bends of meanders and oxbows. The understory is generally sparse, with scattered patches of American hazelnut and huckleberry, and occasional thickets of white pine seedlings/saplings in canopy gaps. The groundlayer is dominated by Penn sedge, bracken fern, and Canada mayflower, with northern plants such as clubmosses, Canada honeysuckle, goldthread, and pink lady's-slipper also present.

Dickey Creek is a very soft, brown colored, cold water stream that is tributary to Morrison Creek. Headwater segments between flowages are often intermittant in flow. Bottom substrate is mostly sand with gravel, bedrock, and rubble.

The surrounding sandy, level upland flats above the valley of Dickey Creek are managed on commercial rotations for (natural) jack pine and (plantation-grown) red pine. Dickey Creek flows into Morrison Creek less than ¼ mile east of the Black River.

Significance of Site

This small linear site has a representative native flora and contains an intact stand of mature forest that is developing old-growth attributes and supports regionally uncommon northern birds. This site is directly connected to the "Morrison Creek Gorge" and "Upper Black River" sites.

Management Considerations

There is potential for expansion and improvement of the stand by allowing the community to expand along the creek corridor and onto adjoining upland flats in a continuum. Presently these upland flats are managed as jack pine and red pine plantations. The presence of an old roadbed and borrow pit may be contributing to slumping and eroding clay slopes along the creek. Illegal garbage dumping is a problem that should be addressed. A portion of the stream corridor is on lands owned by the Ho-Chunk tribe, and their interest in site protection should be explored.

BR05 - Dickey Creek Gorge Element Occurrences

Scientific Name	Common Name	Date	State Rank	Global Rank	WI Status
Communities					
dry cliff	dry cliff	1982	S4		NA
moist cliff	moist cliff	1982	S4		NA
northern dry-mesic forest	northern dry-mesic forest	1997	S3	G4	NA
pine barrens	pine barrens	1982	S2	G2	NA

BR06. DICKEY CREEK PINES AND PEATLANDS

Location

USGS 7.5' Quadrangle: Hatfield SW

Town-Range-Section: T22N-R3W, sections 26 and 33-35

Approximate Size: 327 ac.

Description of Site

The uplands support a managed dry-mesic forest composed mostly of large to medium-size white and red pines. Canopy associates include Hill's (or black) oak, red maple, and bigtooth aspen. The understory composition is primarily of bracken fern, early blueberry, partridgeberry, and sedges. Sprouts of hardwoods, especially red maple are common, and there are scattered patches of white pine saplings. The canopy is very open, with large gaps almost throughout the stand.

The wetter areas are dominated by white pine and red maple, with supercanopy pines to 30" d.b.h. present. The tall shrub and tree sapling layer is generally sparse, but there are occasional thickets of white pine saplings, mountain holly, and winterberry holly. The low shrub layer and tall herb layers are composed of sphagnum mosses, cinnamon fern, and huckleberry.

To the east of the pine forest communities is an open peatland dominated by sphagnum mosses, sedges, and hardhack.

The dry sandy uplands surrounding the site are managed commercially for forest products. Common cover types include jack pine-Hill's/black oak and red pine plantations.

Significance of Site

The site is significant only for the size and maturity of its residual pines and the relatively undisturbed open peatland. The site occupies a sensitive location, as the wetlands constitute the headwaters of Valentine Creek and also feed Dickey Creek. At this time, the forest canopy is too open to support the more sensitive species that occur in older central Wisconsin pine forests. It might be considered for old-growth status, but it will be many decades (and probably several property management plans) before conditions would make this a worthwhile action.

Management Considerations

Protection of site hydrology and allowing the development of forests with old-growth characteristics over a viable acreage are the primary considerations. Very few pine stands in this part of the forest exhibit mature attributes.

BR06 - Dickey Creek Pines and Peatlands Element Occurrences

Scientific Name	Common Name	Date	State Rank	Global Rank	WI Status	US ESA Status
Animals						
Oeneis jutta	jutta arctic	1999	S3	G5	SC/N	
Somatochlora franklini	delicate emerald	1999	S2S3	G5	SC/N	
Somatochlora incurvata	warpaint emerald	1997	S2	G4	END	
Williamsonia fletcheri	ebony bog haunter	1999	S3S4	G3G4	SC/N	
Plants						
Polygala cruciata	crossleaf milkwort	1997	S3	G5	SC	
Scleria triglomerata	whip nutrush	1997	S2S3	G5	SC	
Communities						

Scientific Name	Common Name	Date	State Rank	Global Rank	WI Status	US ESA Status
central poor fen	central poor fen	1997	S3		NA	
northern dry-mesic forest	northern dry-mesic forest	1997	S3	G4	NA	
white pine-red maple swamp	white pine-red maple swamp	1997	S2	G3G4	NA	

BR07. LICHTNER ROAD PEATLANDS

Location

USGS 7.5' Quadrangle:	Hatfield, Hatfield SW
Town-Range-Section:	T22N-R2W, sections 18-20
	T22N-R3W, sections 13
Approximate Size:	64 ac.

Description of Site

The site contains an elongated, linear peatland trending northwest-southeast that is bisected by Lichtner Road. The substrate is sedge and moss peat, over sand. The dominant plant species include sphagnum mosses, wire-leaved sedges, and hardhack. Floristic diversity is low, which is characteristic of the open peatlands of central Wisconsin. Scattered tiny "islands" of slightly higher ground support jack pine, over an understory of swamp dewberry, chokeberry, huckleberry, and bog birch. There is an old ditch present through a portion of the peatland, but the hydrologic impacts do not appear significant. Mossing history is uncertain.

The surrounding landscape is a commercially managed dry forest of jack pine, Hill's or black oak, aspen, and white pine, with scattered pine plantations.

Significance of Site

The significance of this site is primarily in the occurrence of a relatively undisturbed, albeit small and linear, peatland, and the rare species it supports.

Management Considerations

The potential harvest of jack pine stands on the wet soils at the margin of the peatland is a potential threat to the peatland. Hydrologic impacts related to the town road should be monitored.

BR07 - Lichtner Road Peatlands Element Occurrences

Scientific Name	Common Name	Date	State Rank	Global Rank	WI Status	US ESA Status
Animals						
Lycaeides melissa samuelis	Karner blue butterfly	1998	S2S3	G5T2	SC/FL	LE
Communities						
central poor fen	central poor fen	1997	S3		NA	

BR08. KOMENSKY PEATLANDS

Location

USGS 7.5' Quadrangle: Hatfield SW

Town-Range-Section: T22N-R2W, sections 30 and 31
T22N-R3W, sections 25 and 36

Approximate Size: 478 ac.

Description of Site

This extensive, branching open peatland, is dominated by sphagnum mosses and wire-leaved sedges. Broad-leaved sedges, hardhack, and bluejoint grass are also frequent, and are locally dominant in some areas. Moss harvest has occurred in the western portion of the basin, but the overall site hydrology is intact. Small stands of swamp conifers, mostly tamarack, more rarely, black spruce, occur as islands within the otherwise open peatland, and also form a fringe around the wetland margin on the south. A wet forest, composed of small jack pine and red maple, occurs in small stands on the southern edge of the wetland basin.

The peatland is surrounded by a managed dry forest of jack pine, Hill's/black oak, aspen, and white pine. Recent cutovers to the east and south of the wetland support many plants characteristic of both barrens and heath communities.

Significance of Site

The site is significant for its unaltered hydrology and relatively intact peatland communities. Numerous rare species have been documented here; several of these are rare region-wide. The dry sandy uplands provide a mosaic of natural communities that could be managed to enhance the ecosystem's natural values.

Management Considerations

The impacts of ditching on Central Wisconsin peatlands vary from minor to highly significant. This site is one of the few on the State Forest that might serve as a benchmark for the original condition of this wetland type. Rare species protection needs will be reviewed by BER staff. Affording strong protection to the natural communities present will provide a foundation for protecting both sensitive species and community processes.

Management of the uplands needs to provide both patches of dry conifer forest and open barrens habitat. The uplands south and east of the wetland basin could be managed, in part, by the use of prescribed fire, brushing, and other methods to retain parts of the site in an open or semi-open condition. Restoration of barrens to the east and north of the site would complement efforts there to maintain rare or otherwise sensitive members of the barrens community.

BR08 - Komensky Peatlands Element Occurrences

Scientific Name	Common Name	Date	State Rank	Global Rank	WI Status
Animals					
Aeshna verticalis	green-striped darner	1998	S3	G5	SC/N
Ammodramus leconteii	Le Conte's sparrow	2000	S2B,SZN	G4	SC/M
Oeneis jutta	jutta arctic	2000	S3	G5	SC/N
Paradamoetas fontana	a jumping spider	1997	S?	G?	SC/N
Somatochlora franklini	delicate emerald	1999	S2S3	G5	SC/N
Somatochlora incurvata	warpaint emerald	1999	S2	G4	END

Scientific Name	Common Name	Date	State Rank	Global Rank	WI Status
Williamsonia fletcheri	ebony bog haunter	1999	S3S4	G3G4	SC/N
Williamsonia lintneri	ringed boghaunter	1999	S2S3	G3	SC/N
Plants					
Polygala cruciata	crossleaf milkwort	1997	S3	G5	SC
Salix sericea	silky willow	1933	S1	G5	SC
Communities					
central poor fen	central poor fen	2000	S3		NA

BR09. STAFFON ROAD BARRENS AND PEATLANDS

Location

USGS 7.5' Quadrangle: Hatfield SW

Town-Range-Section: T22N-R2W, sections 20, 21, 28, 29, 31, and 32

Approximate Size: 1079 ac.

Description of Site

This nearly level, sandy site is drained by tributaries of the Morrison Creek system. Extensive salvage of budworm-damaged jack pine occurred here in the mid-1990s, leaving much of the landscape in a brushy, open condition. In its present state, many plants characteristic of sand prairies and pine barrens communities are favored. Among the native grasses and forbs now prominent are little bluestem, June grass, big bluestem, wild lupine, rough blazing star, goat's rue, birdfoot violet, western sunflower, and azure aster. Blueberries, sweet fern, and bearberry are also thriving. Grubs of Hill's/black and bur oak, and sapling jack pine are also common. Widely scattered mature oaks and a few large pines are also present.

The fauna includes many species that prefer or depend on open, somewhat brushy conditions. These include several rare invertebrates, and birds such as Common Nighthawk, Rufous-sided Towhee, Brown Thrasher, Vesper Sparrow, Eastern Bluebird, Eastern Kingbird, and Chestnut-sided Warbler.

Several small streams cross the site, generally from east, or southeast, to west. The streams are bordered by narrow terraces, which are typically a few meters below the level of the uplands. These terraces support a variety of small patch wetland communities, primarily alder thicket and sedge meadow. Small seepages are common.

South of Staffon Road, open peatlands are common. These are dominated by sphagnum mosses, sedges, and hardhack, with small patches or "islands" of jack pine, chokeberry, and bog birch. Low ridges between the wetlands were also cutover recently in the jack pine salvage operations, and these also support a number of barrens species.

The site occurs within a vast area of commercialized logged forests, and smaller embedded open peatlands. A drained, diked, abandoned cranberry marsh adjoins the northeast end of the site and has doubtlessly impacted its hydrology. No mossing activity was apparent. A state prison is located about one mile to the northwest of the site; otherwise the region is uninhabited.

Significance of Site

The site affords a good opportunity to manage for both open barrens and savanna conditions on the uplands, thereby maintaining habitat for a large number of rare and declining species. The hydrology has been locally disturbed, but a variety of rare species are present, including several specialized plants in an apparently "natural" habitat (see rare plant table, and discussion of "ditch" plants), and the Karner blue butterfly.

The streams drain an extensive area, and drain into Morrison Creek, which supports a highly significant aquatic biota.

Management Considerations

Maintaining at least a portion of this site in a permanently open or semi-open savanna condition is highly desirable here, given the presence of rare or otherwise sensitive species and the opportunities to link these populations to others in the local landscape. Several areas have been planted to red pine

in the past few years, diminishing short-term opportunities locally. Good opportunities for barrens restoration and maintenance remain, especially south of Staffon road and to the north, between White Creek, Morrison Creek, and the unnamed creek corridors to the south of Morrison Creek. Prescribed fire should be considered as a management option in at least some of these areas, as both natural and unnatural firebreaks occur here.

A portion of the peatland just south of Staffon Road had been converted to a cranberry operation, via ditch and dike construction. Restoration of site hydrology is a potentially important management consideration.

Protection of water quality and quantity is critical to ensure the protection of the aquatic community of Morrison Creek.

BR09 - Staffon Road Barrens and Peatlands Element Occurrences

Scientific Name	Common Name	Date	State Rank	Global Rank	WI Status	US ESA Status
Animals						
Lycaeides melissa samuelis	Karner blue butterfly	1997	S2S3	G5T2	SC/FL	LE
Sorex arcticus	arctic shrew	1998	S2	G5	SC/N	
Plants						
Bartonia virginica	yellow screwstem	1997	S3	G5	SC	
Polygala cruciata	crossleaf milkwort	1997	S3	G5	SC	
Thelypteris simulata	bog fern	1997	S3	G4G5	SC	
Utricularia geminiscapa	hidden-fruited bladderwort	1997	S3	G4G5	SC	
Communities						
central poor fen	central poor fen	1997	S3		NA	
pine barrens	pine barrens	1999	S2	G2	NA	

BR10. BROCKWAY PONDS

Location

USGS 7.5' Quadrangle: Hatfield SW

Town-Range-Section: T21N-R3W, sections 1

Approximate Size: 144 ac.

Description of Site

Most of this site is on Jackson County Forest lands just to the west (see site EX02, "Brockway Ponds and Peatlands" in Appendix G) The portion that occurs on the Black River State Forest consists mostly of boggy open meadow (Central Poor Fen) and shrub swamp (Alder Thicket and Shrub-Carr).

Significance of Site

The wetlands are intact and site hydrology appears unmodified. Several rare species have been documented on the limited area of the site within the boundary of the Black River State Forest.

Management Considerations

The most important management consideration is to maintain the integrity of the site's hydrology. Coordination with Jackson County is critical to ensure that this peatland and its associated natural ponds and dry forests are maintained in good condition.

BR10 - Brockway Ponds Element Occurrences

Scientific Name	Common Name	Date	State Rank	Global Rank	WI Status
Animals					
Williamsonia fletcheri	ebony bog haunter	1999	S3S4	G3G4	SC/N
Plants					
Polygala cruciata	crossleaf milkwort	1997	S3	G5	SC
Communities					
central poor fen	central poor fen	1997	S3		NA

BR11. BATTLE POINT – DIKE 17 COMPLEX

Location

USGS 7.5' Quadrangle:	Hatfield SE, Hatfield SW
Town-Range-Section:	T21N-R2W, sections 1-6, 8-16, 23, and 24
Approximate Size:	4812 ac.

Description of Site

Much of this wetland complex of several thousand acres has been altered by an extensive system of dikes and ditches to create impoundments for use by waterfowl. Dike 17 Wildlife Area occupies the eastern portion of the site. Major wetland types within the impoundments include sedge meadow and boggy fen. Tamarack swamp and shrub wetlands composed of speckled alder, bog birch, and willows are important but secondary types.

The western portion of the site, south of Battle Point ridge, consists of a large open peatland composed of sphagnum mosses, sedges, Canada bluejoint grass, and hardhack. Though several impoundments have also been constructed here, the impacts have been less far-reaching. Tamarack and bog birch are important woody species in some areas, with scattered small black spruce and jack pine also present. The wetland margins generally have a narrow zone of tall shrubs, especially tag alder, chokeberry, winterberry holly, and mountain holly.

The surrounding uplands to the northwest, west, and south are managed for oak and pine. Dike 17 Wildlife Area to the east is intensively managed as a feeding/resting place for migratory waterfowl, with attendant controlled burns, water level manipulation, and haying.

Battle Point, an east-west trending ridge with a bedrock core of Precambrian granite, supports a forest of Hill's/black oak on dry sandy soils. Associated trees include jack pine, white pine, big-tooth aspen, and red pine. Much of this forest, especially of the southern slopes of the ridge, has a relatively open understory, which besides the usual sedges, huckleberry, and blueberry includes sand prairie and barrens plants. Battle Point Road, a graded sandy track, runs the length of the site and provides access to Battle Point Flowage, and there is an ATV/snowmobile trail that crosses the track from north to south. Other frequent trees are white pine, jack pine, and aspen, and the groundlayer consists of Penn sedge, bracken fern, early blueberry, and big-leaved aster. Sand prairie species, such as lupine, big bluestem, and flowering spurge, are also present in openings and along roadsides.

Significance of Site

The peatland is large and has a representative biota that includes several rare plants. Resident birds include Northern Harrier, Bobolink, Sandhill Crane, American Bittern, and Sedge Wren. It is the least altered part of a large wetland complex, and adjacent to Dike 17 Flowage, which historically had a large population of eastern massasauga rattlesnakes.

The selectively-cut oak forest and woodland consists of moderately-sized black oak or Hill's oak stands on dry sandy soils of a bedrock-cored (granite, which is exposed at a small abandoned quarry), west-east running ridge.

Management Considerations

The impacts of mossing are not adequately understood. Many birds, including several uncommon species, nest in the open wetlands at the same time that moss harvest would occur. Flowage management is an important consideration, to ensure that sensitive animals, especially herptiles, are

not harmed during their hibernation periods, and that the spread of potentially invasive plants is not facilitated. Management should include protection of the most intact parts of this basin, expansion of open areas where they will most benefit sensitive species, and to manage the periphery compatibly with maintaining large open areas.

Oak forests on Battle Point Ridge should be considered for a relatively conservative forest management regime, that maintains a balance of filtered shade and openings for plants and invertebrates that do best in savanna or woodland habitats (not clear-cut "brush" barrens). To the east, at Dike 17, maintaining and expanding openings with prescribed fire and brushing is essential to provide sufficient habitat for area-sensitive grassland species such as Sharp-tailed Grouse, Northern Harrier, Sandhill Crane and American Bittern. Scattered trees or small groves of oak and pine are also needed to meet the requirements of some of the rare invertebrates present. Burn rotations need to allow for the recovery of fire-sensitive species within burned areas. The present policy of gating the lateral lanes running south from Battle Point Road to Little Bear, Big Bear, and Wilson Flowages should be continued.

BR11 - Battle Point - Dike 17 Complex Element Occurrences

Scientific Name	Common Name	Date	State Rank	Global Rank	WI Status	US ESA Status
Animals						
Aeshna verticalis	green-striped darner	1997	S3	G5	SC/N	
Atrytonopsis hianna	dusted skipper	1994	S2?	G4G5	SC/N	
Botaurus lentiginosus	american bittern	2001	S3B,SZN	G4	SC/M	
Callophrys henrici	henry's elfin	1992	S2	G5	SC/N	
Callophrys irus	frosted elfin	1995	S1	G3	THR	
Cicindela patruela huberi	a tiger beetle	1997	S3	G3T2	SC/N	
Circus cyaneus	Northern Harrier	2001	S2N,S3B	G5	SC/M	
Emydoidea blandingii	Blanding's turtle	2001	S3	G4	THR	
Erynnis persius	persius dusky wing	1992	S2	G5	SC/N	
Euphyes bimacula	two-spotted skipper	1989	S2S3	G4	SC/N	
Hydroporus badiellus	a predaceous diving beetle	1997	S3?	G?	SC/N	
Lycaeides melissa samuelis	Karner blue butterfly	1998	S2S3	G5T2	SC/FL	LE
Melanoplus fasciatus	huckleberry spur-throat grasshopper	1997	S1?	G4	SC/N	
Orphulella pelidna	spotted-winged grasshopper	1997	S1?	G5	SC/N	
Poanes massasoit	mulberry wing	1988	S3	G4	SC/N	
Psinidia fenestralis	sand locust	1996	S1S2	G5	SC/N	
Sistrurus catenatus catenatus	eastern massasauga rattlesnake	1988	S2	G3G4T3T4	END	C
Sorex arcticus	arctic shrew	1998	S2	G5	SC/N	
Sympetrum danae	black meadowhawk	1997	S3	G5	SC/N	
Trachyrhachys kiowa	ash-brown grasshopper	1997	S2	G5	SC/N	
Williamsonia fletcheri	ebony bog haunter	1997	S3S4	G3G4	SC/N	
Plants						
Bartonia Virginica	yellow screwstem	1997	S3	G5	SC	
Carex Cumulata	clustered sedge	1997	S2	G4?	SC	
Polygala Cruciata	crossleaf milkwort	1997	S3	G5	SC	
Potamogeton Diversifolius	water-thread pondweed	1997	S2	G5	SC	
Rhexia Virginica	virginia meadow-beauty	1997	S2	G5	SC	
Utricularia Geminiscapa	hidden-fruited bladderwort	1997	S3	G4G5	SC	
Viola Fimbriatula	sand violet	1996	S2	G5	END	
Communities						
central poor fen	central poor fen	1997	S3		NA	
central sands pine-oak forest	central sands pine-oak forest	1997	S3	G3	NA	

BR12. MARTIN MARSH

Location

USGS 7.5' Quadrangle:	Hatfield SE
Town-Range-Section:	T21N-R1W, sections 6
	T21N-R2W, sections 1
Approximate Size:	76 ac.

Description of Site

Martin Marsh is a large, mostly open acid peatland straddling the boundary of the Black River State Forest and the adjoining Jackson County Forest. Most of this wetland is on Jackson County land. The primary community is an extensive poor fen characterized by narrow-leaved sedges and hardhack over a substrate of sphagnum mosses. Patches of shrub swamp, composed of bog birch, alder, chokeberry, and others, are also present, along with scattered stands of small tamarack. The primary land use has been the repeated commercial harvest of sphagnum moss.

Significance of Site

Detailed surveys have not been conducted here, but the site is large and had an intact hydrology. It has high potential to support some the rare plants, invertebrates, and birds that have been documented recently in similar Central Sands peatlands.

Management Considerations

The impacts of repeated sphagnum harvest are neither well documented nor well understood. Managers should keep this in mind when permitting mossing activities. This site would be an excellent candidate for inclusion in a region-wide research project to clarify the ecological impacts of sphagnum harvest. The collection of additional information on the flora and fauna of this site is desirable.

BR12 - Martin Marsh Element Occurrences

Scientific Name	Common Name	Date	State Rank	Global Rank	WI Status
Plants					
Polygala Cruciata	crossleaf milkwort	1997	S3	G5	SC

BR13. SPIDER PEATLANDS

Location

USGS 7.5' Quadrangle: Hatfield SE, Hatfield SW

Town-Range-Section: T21N-R2W, sections 20-22, 27, and 28

Approximate Size: 532 ac.

Description of Site

This complex consists mainly of two communities: a branching Central Sedge Poor Fen peatland partly enclosing a Central Sands Pine-Oak Forest in several of its "arms." The peatland is dominated by sphagnum mosses, narrow-leaved sedges, hardhack, Canada bluejoint grass, swamp dewberry, and large-fruited cranberry. In places, this open wetland grades into an open jack pine forest; in the south there has been a history of mossing, and this area has generally fewer woody plants. Low, dry, sandy ridges associated with the peatland basin support a dry forest composed of black (and/or Hill's) oak, with quaking aspen and red maple also common. White oak and all three native pines (jack, red, and white) are occasional. The upland forests have a history of commercial logging. Huckleberry, bracken fern, and early blueberry are dominant in the shrub and tall herb layer, while Penn sedge was common in the low herb layer. Logging lanes access these upland forests from the southeast. The entire Spider Peatlands complex is embedded in a remote area managed for pine, oak, and aspen forests, and recreation (hunting). An ATV trail occurs on an old railroad grade on the south border and southwest side of the site.

Significance of Site

The peatland has been partially mossed but is unaltered hydrologically (unditched and undiked) and quite extensive; as such, it is one of only a handful of such wetlands in the western part of the central sand plain. Several rare plants occur in these peatlands, or on the margin of the old railroad grade/ATV trail to the southwest. The site is remote and occurs not far to the southwest of the Battle Point Ridge-Dike 17 Complex.

Management Considerations

Protection of site hydrology is of major importance, and any impacts caused by construction of the old railroad grade need to be addressed. Mossing impacts are poorly understood, and any proposals to harvest moss here should be restricted to previously mossed areas. Avoiding negative impacts to rare or otherwise sensitive species is a critical consideration for this site.

BR13 - Spider Peatlands Element Occurrences

Scientific Name	Common Name	Date	State Rank	Global Rank	WI Status
Animals					
Oeneis jutta	jutta arctic	1999	S3	G5	SC/N
Plants					
Bartonia virginica	yellow screwstem	1997	S3	G5	SC
Carex folliculata	long sedge	1997	S3	G4G5	SC
Polygala cruciata	crossleaf milkwort	1997	S3	G5	SC
Thelypteris simulata	bog fern	1997	S3	G4G5	SC
Utricularia geminiscapa	hidden-fruited bladderwort	1997	S3	G4G5	SC
Communities					
Central Poor Fen	central poor fen	1997	S3		NA
Central Sands Pine-Oak Forest	central sands pine-oak forest	1997	S3	G3	NA

BR14. RING MARSH

Location

USGS 7.5' Quadrangle: Hatfield SE

Town-Range-Section: T21N-R2W, sections 23-26

Approximate Size: 194 ac.

Description of Site

This open wetland occupies a basin to the south of the Dike 17 area. The northern, unmossed section is dominated by wide-leaved sedges and sphagnum mosses, while the southern mossed areas have wire-leaved sedges, hardhack, and white beakrush. Small tamarack, jack pine, and white birch are scattered locally in this wetland. A fringe of tamarack, black spruce, and bog birch occupies the margins. Deer trails and ruts from mossing equipment provide microhabitats for uncommon plants. Resident birds include Sandhill Crane, Sedge Wren and Pied-billed Grebe. The surrounding area contains other mossed wetlands, and the uplands are intensively managed for timber (plantation-grown pine, oak, and aspen). The dike at the north end of the site forms Tanner Flowage.

Significance of Site

The rare plants yellow screwstem and hidden-fruited bladderwort are present. This site would be ideal for studying the effects of mossing because the mossed and unmossed areas appear very different, and past records of moss harvest activities are available.

Management Considerations

Restrict mossing operations to previously affected areas, at least until the impacts are clarified. This site is an excellent candidate for inclusion in a research project on the impacts of moss harvest on the resident plants and animals of central Wisconsin peatlands.

BR14 - Ring Marsh Element Occurrences

Scientific Name	Common Name	Date	State Rank	Global Rank	WI Status
Animals					
Hydroporus badiellus	a predaceous diving beetle	1997	S3?	G?	SC/N
Ilybius discedens	a predaceous diving beetle	1997	S3	G?	SC/N
Plants					
Bartonia virginica	yellow screwstem	1997	S3	G5	SC
Carex folliculata	long sedge	1997	S3	G4G5	SC
Utricularia geminiscapa	hidden-fruited bladderwort	1997	S3	G4G5	SC
Communities					
central poor fen	central poor fen	1997	S3		NA
white pine-red maple swamp	white pine-red maple swamp	1997	S2	G3G4	NA

BR15. CIRCLE HILL MARSH

Location

USGS 7.5' Quadrangle: Hatfield SE

Town-Range-Section: T21N-R2W, sections 25

Approximate Size: 58 ac.

Description of Site

The majority of this wetland is characterized as an acid, open fen composed of sphagnum mosses, narrow-leaved sedges, and hardhack. Small stands of shrub swamp and tamarack occur at the peatland margins. Commercial harvest of sphagnum moss has occurred almost throughout the open portions of this wetland.

Significance of Site

The hydrology of the wetland basin is intact, and several rare species have been documented here.

Management Considerations

Maintenance of site hydrology and monitoring the effects of moss harvest are the key considerations. This site is a prime candidate for inclusion in a research project designed to clarify the impacts of sphagnum harvest on vegetation composition and structure and rare species viability.

BR15 - Circle Hill Marsh Element Occurrences

Scientific Name	Common Name	Date	State Rank	Global Rank	WI Status
Animals					
Aeshna verticalis	Green-striped darner	1997	S3	G5	SC/N
Lycaena epixanthe	Bog copper	1997	S2S3	G4G5	SC/N
Plants					
Carex folliculata	Long sedge	1997	S3	G4G5	SC
Polygala cruciata	Crossleaf milkwort	1997	S3	G5	SC

BR16. SETTLEMENT ROAD PINE SWAMP

Location

USGS 7.5' Quadrangle: Hatfield SE

Town-Range-Section: T21N-R2W, sections 25, 26, 35, 36

Approximate Size: 168 ac.

Description of Site

This site is drained by a small stream and supports both wet-mesic White Pine-Red Maple Swamp and dry-mesic white pine-oak forest communities. Topography is gently rolling, generally descending along a south-to-north gradient. Canopy closure is generally high, and includes large white pines that exceed 20" d.b.h. In the wetter areas, the groundlayer is composed of sphagnum mosses, cinnamon fern, swamp dewberry, skunk cabbage, sedges, and winterberry holly. Many northern plants, such as goldthread, bunchberry, and bluebead lily are present. The adjoining uplands contain a significant component of oak, including white oak. Bracken fern, blueberries, huckleberry, pipsissewa, and clubmosses are present.

The upland forests of pine, oak, and aspen that surround the site have all been logged heavily in the recent past, excepting the red pine plantations to the south and west. The site is bisected by Kling Road. To the north is Ring Marsh Peatland, itself a southern outlier of the vast Dike 17 Wildlife Area wetland complex farther north.

Significance of Site

Although small and isolated by roads and recent cutting, the forest is otherwise intact and supports rare species that do not find suitable habitat in the nearby cutover areas. At least one state-threatened animal and several rare plants are present. The small headwater stream is currently protected by the surrounding forest, and is also of note as its watershed is forested and the upper reaches are not affected by impoundments.

Management Considerations

Currently the site contains the only mature forest in the vicinity, though it has been isolated by cutovers. North Settlement Road bisects the site and has impacted the hydrology locally on the upslope side (south) of the road. The forest communities should be evaluated for special management designation. Retention of high canopy closure and large trees (potentially including supercanopy emergents) are important management considerations irrespective of future land use classification, as are an increase in effective stand size, and reduction of isolation.

The amount and distribution of older forest patches, of various communities, needs to be thought out at a forest- or region-wide scale. Logging this stand at the present time would leave essentially no suitable habitat in this part of the BRSF for some of the sensitive species known to occur here.

BR16 - Settlement Road Pine Swamp Element Occurrences

Scientific Name	Common Name	Date	State Rank	Global Rank	WI Status
Animals					
Buteo lineatus	Red-shouldered Hawk	2002	S3S4B	G5	THR
Plants					
Carex folliculata	long sedge	1997	S3	G4G5	SC
Thelypteris simulata	bog fern	1997	S3	G4G5	SC
Communities					

Scientific Name	Common Name	Date	State Rank	Global Rank	WI Status
white pine-red maple swamp	white pine-red maple swamp	1997	S2	G3G4	NA

BR17. WILDCAT PEATLANDS – TROWE MARSH

Location

USGS 7.5' Quadrangle: Hatfield SW
Town-Range-Section: T21N-R2W, sections 28-33
Approximate Size: 697 ac.

Description of Site

This is a large, remote, relatively undisturbed, acid peatland containing a diverse array of open wetland communities. In the eastern portion of the basin there is no direct evidence of hydrologic disturbance, although there has been past harvest of sphagnum moss on the northern and eastern edges of the site. The peatland interior is composed mostly of sphagnum mosses, sedges (both wire-leaved and broad-leaved spp.), Canada bluejoint grass, swamp dewberry, and hardhack. The northeast and northwestern edges of the eastern basin ("Wildcat Peatlands") have a more diverse, muskeg-like structure that includes scattered tamarack, bog birch, tag alder, and leatherleaf. Deer trails through the wetland support at least five rare plant species.

Small "islands" of jack pine, chokeberry, bog holly, and alder are present in the northwestern portion of the site. Resident animals include Sedge Wren, Sandhill Crane, and Northern Harrier. Golden-winged Warblers were noted at several locations along the upland-wetland interface, often where a mixture of tamarack, alder, and bog birch adjoin an upland forest.

The adjacent uplands are vegetated with dense, young monotypic stands of aspen and, in some places, mixtures of pine-oak-red maple.

Significance of Site

This peatland is significant for its size, the diversity of its vegetational mosaic, and for the presence of several rare plant species such as screwstem and crossleaf milkwort in undisturbed, apparently natural habitat. Many of the sites that currently support these plants are man-made: ditches, abandoned logging roads, or the margins of borrow pits. Here they also occur along animal trails and in small natural pools within the wetland. This presents an important monitoring opportunity. Rare birds breed here, and rare invertebrates have been also been collected.

Management Considerations

The western portion of the site ("Trowe Marsh") has been extensively ditched in the past. The need for the restoration of site hydrology should be examined. Stands of swamp conifers and the small "islands" of jack pine should be reserved from timber management proposals at this time, as they provide important habitat for several species (including rare invertebrates) that would not otherwise occur here.

The peat profile and soil water chemistry should be determined. Moss harvest should be restricted to areas that have been affected previously, and any proposals to harvest moss should be designed to avoid negative impacts to sensitive resident biota.

BR17 - Wildcat Peatlands-Trowe Marsh Element Occurrences

Scientific Name	Common Name	Date	State Rank	Global Rank	WI Status	US ESA Status
Animals						
Dendroica kirtlandii	Kirtland's warbler	1989	SAN	G1	SC/M	LE

Scientific Name	Common Name	Date	State Rank	Global Rank	WI Status	US ESA Status
Paradamoetas fontana	A Jumping Spider	1997	S?	G?	SC/N	
Somatochlora franklini	delicate emerald	1998	S2S3	G5	SC/N	
Somatochlora incurvata	warpaint emerald	1998	S2	G4	END	
Plants						
Bartonia virginica	yellow screwstem	1997	S3	G5	SC	
Carex folliculata	long sedge	1997	S3	G4G5	SC	
Polygala cruciata	crossleaf milkwort	1997	S3	G5	SC	
Thelypteris simulata	bog fern	1997	S3	G4G5	SC	
Utricularia geminiscapa	hidden-fruited bladderwort	1997	S3	G4G5	SC	
Communities						
Central poor fen	central poor fen	1997	S3		NA	

WILDCAT MOUND MACROSITE

Sites Included:

- Wildcat Ridge (BR18)
- Smrekar Ridge (BR19)

Description of Macrosite

This extensive system of Cambrian sandstone ridges supports a mosaic of forest communities that represent a variety of site conditions, age classes, and canopy composition. Dry-mesic to very dry forests are predominant, with jack pine, red pine, white pine, black/Hill's oak, white oak, red oak, red maple, and bigtooth aspen among the important canopy species.

The "macrosite" has been split into two standard sites: Smrekar Ridge and Wildcat Ridge. Boundaries follow local roads that create more or less permanent breaks in the continuous forest canopy.

Significance of Macrosite

This forested ridge system constitutes the most extensive area of intact upland forest on the property. Many forest species that are area, edge, or isolation sensitive and require or prefer large blocks of forest with high canopy closure are presently common here. Scarlet Tanager, Yellow-throated Vireo, Least Flycatcher, Ovenbird, Barred Owl, and Pileated Woodpecker are among the resident birds. Species that are associated primarily with stands of conifers include Red-breasted Nuthatch, Hermit Thrush, and Solitary Vireo. Several rare species have been documented here.

State ownership is extensive. Relatively little logging has occurred here recently. Many of the forests surrounding the ridge system have experienced logging recently.

Management Considerations

The notes from the Public Lands Surveys of the mid-1800s indicate that much of this site supported an extensive oak forest, locally mixed with pine, prior to European settlement. Maintenance of large blocks of mature upland forest is an important and appropriate consideration on this property, in the study area, and for the macrosite itself. This area affords the best opportunity on the State Forest to do this. The establishment of one or several State Natural Areas should be a future master planning consideration. Older forest is currently under-represented on the property and throughout this landscape, and there are several stands here that would make excellent candidates for representation of later forest successional stages and maybe also as "benchmarks" for one or several of the forest communities present. Phasing out the plantations within and around the site is desirable from the standpoint of compatibility and eventually increasing within and between stand diversity. Establishing and retaining ecological connections with other important sites nearby is also an important consideration.

Present uses, which emphasize non-motorized recreation, are compatible with maintaining the ecological integrity of the area. Other ownerships in the area do not offer opportunities of comparable scale or quality.

The macrosite includes an area ("Smrekar Ridge") that was designated as the "Overmeyer Hills Wild Area" in the last master plan developed for the property (DNR 1983). Silvicultural prescriptions that are permitted in "Wild Areas" are somewhat different from those that are practiced on lands that are dedicated to forest products, but the differences are meant primarily to enhance aesthetic values while allowing for some timber harvest, rather than to accommodate ecological attributes. An amendment to the property master plan several years ago allowed for the implementation of forest management

practices that had not previously occurred at the site under the "Wild Area" designation. Consideration of a complementary amendment that provided for large forest blocks, older forest, and the development and application of techniques that would be most compatible with perpetuating the special ecological opportunities this site affords is warranted. The landscape pattern of forest patches produced by timber harvest is of primary consideration here, and actions that would break the site up into a patchwork quilt of relatively small scale harvested areas should be avoided.

BR18. WILDCAT RIDGE

(Wildcat Mound Macrosite)

Location

USGS 7.5' Quadrangle:	Warrens West, Hatfield SE
Town-Range-Section:	T20N-R2W, sections 2 and 3
	T21N-R2W, sections 26, 27, 34, and 35
Approximate Size:	819 ac.

Description of Site

This site encompasses portions of a ramifying sandstone ridge that rises to a height of ca 300' above the surrounding plain, and trends northwest to southeast from Wildcat Mound to North Settlement Road. The forested ridge is dominated by oaks, though pines are dominant locally, and mixed stands of pine-hardwood forest are common. Associated canopy species include bigtooth aspen, black cherry, paper birch, and basswood. Relatively little recent logging has occurred here. The ridge is set within a context of intensively managed forest on the plain below. Dominants there are similar (pines, oaks, aspens, and some red pine plantations), though there are small stands of wet-mesic white pine-red maple forest at a few locations. Several trails cross the area, and important recreational uses include hiking, cross country skiing, birding, hunting, and camping. The same landform continues for several miles to the southeast (see "Smrekar Ridge" site description).

A xeric forest (typed as a "Central Sands Pine-Oak Forest") occurs for about one mile along the upper slopes of the sandstone ridgeline, extending from Shale Road to North Settlement Road. In some areas the steep, very dry, sandy south- and west-facing slopes are forested with a narrow band of jack pine with few other associates (mostly black oak, with some red and white pines). Elsewhere, the drier parts of the site (including the nearly level, plateau-like ridgetop) are dominated by black/Hill's oak, white pine, and big-toothed aspen, with huckleberry the dominant shrub and extensive sods of Penn Sedge constituting the bulk of the herb layer. Small groves of 9-15" d.b.h. red pine are also present. The groundlayer is sparse, but includes a few prairie species such as big bluestem, little bluestem, wild lupine, and flowering spurge.

Another extensive community at the site is a dry-mesic hardwood forest (Southern Dry-Mesic Forest), located on and north of Wildcat Mound, and in some locations along Wildcat Ridge. The mound is an eroded sandstone bluff that supports an extensive unfragmented, mostly deciduous dry-mesic forest, especially on the cooler northern and eastern slopes, and in saddles and coves along the ridge. The dominant trees are 9-15" d.b.h. red oak and white oak, though larger trees are present. The understory includes interrupted fern, lady fern, tick-trefoil, lopseed, Canada mayflower, big-leaved aster, and wild sarsaparilla. Witch hazel and maple-leaved viburnum are among the shrubs present. Very old, charred stumps were encountered, indicating past episodes of logging and wildfire. A drier forest of jack pine and black/Hill's oak occurs on south-facing slopes, with Penn sedge, bracken fern, and a scattering of prairie species.

A small White Pine – Red Maple Swamp (Smrekar-Settlement Pines) occurs at the headwaters of a small creek in the wedge between Shale Road and North Settlement Roads. The supercanopy contains 20-26" d.b.h. white pine, while smaller pines and red maples comprise the canopy. A few blow-downs and tip-ups are present. The tall shrub layer is very open, with scattered clumps of winterberry holly and speckled alder the prevalent species. Early blueberry and huckleberry are common in the low shrub layer. Important herbs include cinnamon fern and skunk cabbage, with

sphagnum mosses dominant in the groundlayer. Resident birds include Veery, Barred Owl and Pileated Woodpecker. There are pine plantations immediately adjacent to this stand of swamp forest on the north and east.

Site Significance

This site is contiguous with the "Smrekar Ridge" site. Together they present an outstanding opportunity to manage a large area of unfragmented upland hardwood-conifer forest. The Wildcat Mound dry-mesic oak forest is particularly significant in that it is one of the best examples of this community type in the BRSF and, perhaps, within the study area. The rare plants, long sedge and bog fern, are present in the White Pine-Red Maple Swamp, which has some old-growth characteristics. Several rare lepidopteran species (Karner blue, frosted elfin, and Ernestine's moth) are known from small openings and patches of overgrown barrens areas along Shale Road. Sand violet, a Wisconsin endangered species, is locally frequent along the hiking/ski trails on Wildcat Mound proper, and shadowy goldenrod inhabits dry cliffs, which are frequent on the upper slopes.

Management Considerations

This is an excellent site at which to represent some of the older forest successional stages and patch sizes that are now rare or absent on the State Forest and in the surrounding landscape. Dry southern exposures, openings, trail edges, and roadsides support a few prairie species. Hiking/ski trails are found throughout the site but do not compromise integrity of the forests. All trails should be periodically monitored for the presence of invasive species.

BR18 - Wildcat Ridge Element Occurrences

Scientific Name	Common Name	Date	State Rank	Global Rank	WI Status	US ESA Status
Animals						
Clemmys insculpta	wood turtle	1933	S3	G4	THR	
Dendroica kirtlandii	Kirtland's warbler	1989	SAN	G1	SC/M	LE
Erynnis persius	persius dusky wing	1990	S2	G5	SC/N	
Lycaeides melissa samuelis	Karner blue butterfly	1998	S2S3	G5T2	SC/FL	LE
Trachyrhachys kiowa	ash-brown grasshopper	1999	S2	G5	SC/N	
Plants						
Carex cumulata	clustered sedge	1959	S2	G4?	SC	
Carex folliculata	long sedge	1997	S3	G4G5	SC	
Solidago sciaphila	shadowy goldenrod	1997	S3	G3G4	SC	
Thelypteris simulata	bog fern	1997	S3	G4G5	SC	
Viola fimbriatula	sand violet	1997	S2	G5	END	
Communities						
central sands pine-oak forest	central sands pine-oak forest	1997	S3	G3	NA	
southern dry-mesic forest	southern dry-mesic forest	1997	S3	G4	NA	

BR19. SMREKAR RIDGE

(Wildcat Mound Macrosite)

Location

USGS 7.5' Quadrangle:	Warrens West
Town-Range-Section:	T20N-R1W, sections 7
	T20N-R2W, sections 1, 2, and 11-13
Approximate Size:	1008 ac.

Description of Site

This site extends along the summit and slopes of a 300-foot high sandstone ridge (with outlying spurs and conical knobs) that trends northwest-southeast for three miles, from North Settlement Road to the east boundary of the Forest and south nearly to County Highway O. The ridge is forested, mostly with varying mixtures of pines, oaks, and, in some areas, aspens. On the drier sites, the canopy is composed mostly of jack pine and black/Hill's oak, with some red pine, white oak, paper birch, and bigtooth aspen. Understory dominants include Penn sedge, bracken fern, huckleberry and blueberry. The summit ridge, a "hogback" with hiking and cross-country ski trails and a long-abandoned shale quarry, is mostly forested but includes openings and thinly timbered areas that support a few sand prairie and barrens plants such as flowering spurge, goat's rue, bird's-foot violet, and alum-root. Generally, the xeric forests are prevalent on south and west slopes, along the ridgetop, and on sandstone spurs and knobs that branch out from the main ridge. Isolated knobs in the southern part of the site support stands of maturing jack pine and red pine. White pine is now an important sapling and subcanopy species in many areas, especially on the lower slopes. There is an older stand composed of large white pine, red pine, white oak, and black/Hill's oak that has some old-growth characteristics and is inhabited by resident birds that include many "northern" species such as Blackburnian Warbler, Black-throated Green Warbler, Solitary Vireo, Hermit Thrush, and Red-breasted Nuthatch.

There are several coves and saddles along the main ridge that support more mesophytic vegetation, with red and white oaks dominant, and red maple an important associate. Other trees include black cherry, bigtooth aspen, and basswood. Canopy trees are in the 9-15" d.b.h. class but larger individuals are present. Shrubs include witch hazel, hazelnut, maple-leaved viburnum, and blackberries (*Rubus spp.*). The herb layer supports interrupted fern, lady fern, tick-trefoils (*Desmodium spp.*), and lopseed. A small north-facing escarpment of moist sandstone cliffs features some uncommon "northern" plants such as showy mountain-ash (*Sorbus decora*).

The ridge is situated within an extensive area of dry pine-oak-aspen forests, with many red pine plantations situated around the base of the ridge. To the east are some abandoned agricultural lands (one parcel was recently acquired by the state) and a few scattered private residences. Ecological context is excellent, as several other important inventory sites occur to the northwest, south, and southwest.

Significance of Site

The site has excellent context. It is part of a sandstone ridge complex that extends northwest for several miles to Wildcat Mound, and just to the southwest is the Smrekar Creek Headwaters Complex. Many forest interior birds occur here, and there are several small patches of forest that now have, or are developing, old-growth structural characteristics. Several rare plant species, including sand violet and shadowy goldenrod, are present.

Management Considerations

Key management considerations include: maintaining large patches of unfragmented forest with high canopy cover; representing older successional stages of both mixed conifer-hardwood forest and dry-mesic hardwood forest; employing the use of prescribed fire and alternative silvicultural methods in forest management to maintain fire-dependent forest communities and increase missing structural features; periodic monitoring for the presence of invasive species; and maintaining connections with other important sites in the vicinity. Long periods of fire suppression have probably increased the abundance of woody vegetation in this area and reduced the prairie and barrens components of the fauna and flora. Prairie species are now confined to open edges (trails and roadsides) and steep slopes around sparsely forested rock outcrops. Steep south slopes and transitional areas to the level plain at the base of the ridge may offer localized opportunities to maintain these species. In general, there are better locations on and around the State Forest to emphasize prairie and savanna vegetation. The recreational uses that are presently emphasized on this site (hiking, cross-country skiing, birding, hunting, camping) are compatible with maintenance of important ecological characteristics. Big-tree silviculture can complement areas of older forest by retaining scattered large trees but should not be viewed as a substitute for older intact forest.

BR19 - Smrekar Ridge Element Occurrences

Scientific Name	Common Name	Date	State Rank	Global Rank	WI Status	US ESA Status
Animals						
Buteo lineatus	red-shouldered hawk	2000	S1N,S3S4B	G5	THR	
Clemmys insculpta	wood turtle	1933	S3	G4	THR	
Lycaeides melissa samuelis	Karner blue butterfly	1997	S2S3	G5T2	SC/FL	LE
Plants						
Carex cumulata	clustered sedge	1959	S2	G4?	SC	
Polygala cruciata	crossleaf milkwort	1959	S3	G5	SC	
Solidago sciaphila	shadowy goldenrod	1997	S3	G3G4	SC	
Viola fimbriatula	sand violet	1997	S2	G5	END	
Communities						
central sands pine-oak forest	central sands pine-oak forest	1997	S3	G3	NA	
northern dry-mesic forest	northern dry-mesic forest	1997	S3	G4	NA	

BR20. KETCHUM CREEK HEADWATERS

Location

USGS 7.5' Quadrangle:	Warrens West
Town-Range-Section:	T20N-R2W, sections 11-14
Approximate Size:	504 ac.

Description of Site

This complex site consists of three adjoining communities ranging from southwest to northeast: a Central Poor Fen (Whitney Marsh), a White Pine – Red Maple Swamp (Ketchum Pines); and a Northern Dry-Mesic Forest (Smrekar Pines).

The Central Poor Fen is an acid peatland on the north side of County Highway O. It is dominated by sphagnum species mosses, narrow-leaved sedge, leatherleaf, Canada bluejoint, and hardhack. Common "true bog" species are better represented here than in many other central sands peatlands. Tamarack becomes prominent towards the margins of this peatland. Mossing is ongoing here.

The White Pine – Red Maple Swamp is dominated by large (12-24" diameter) second-growth white pines and smaller red maples and yellow birch. It slopes downhill from north to south. The groundlayer is locally very wet and sphagnous, with seeps and puddles present in places. Winterberry holly is a common shrub, and tag alder becomes dominant where this community grades in the south into the Central Poor Fen (Whitney Marsh) with a tamarack fringe. Common low shrubs and herbs include cinnamon fern and skunk cabbage along with northern species such as bluebead and bunchberry. An excellent northern avifauna is present. Girdled red oaks are present at the north (upland) boundary of the stand. To the northeast are Smrekar Road and the Smrekar Pines upland oak community.

The Northern Dry-Mesic Forest (Smrekar Pines) extends from the previous community to the northeast across Smrekar Road, where the bulk of the site is located. It is a mature, second-growth stand of large white pines, red pines, Hill's oak, white oak, and red maple on gently sloping (upwards to the northeast) dry to dry-mesic, silty and loamy sands. Understory shrubs include huckleberry, early blueberry, and American hazelnut. The groundlayer is not diverse; the commonest species are bracken fern and Penn sedge. Many northern bird species are present.

Significance of Site

The fen is a rather small, but the avifauna includes a number of northern species. Three rare plant species are present: crossleaf milkwort, yellow screwstem, and hidden-fruited bladderwort.

The pine-maple swamp is probably the highest quality examples in the BRSF and is one of the best in Wisconsin. It has large populations of the rare plants bog fern and long sedge. Rare invertebrates are also present. A state-threatened bird is present.

This site has good quality second-growth pines and hardwoods and is important as a corridor connecting wetlands to the southwest, to the large Smrekar Ridge site to the east. The dry-mesic forest is also significant for the presence of "northern" breeding birds such as the Pine, Blackburnian, and Black-throated green Warblers, Red-breasted Nuthatch, and Hermit Thrush.

Management Considerations

For the fen, a moratorium on further mossing should be considered. The pine-maple swamp is already designated as Ketchum Creek Pines State Natural Area. The dry-mesic forest merits serious consideration for special management designation recognizing its ecological values.

BR20 - Ketchum Creek Headwaters Element Occurrences

Scientific Name	Common Name	Date	State Rank	Global Rank	WI Status	US ESA Status
Animals						
Clemmys insculpta	wood turtle	1933	S3	G4	THR	
Erynnis persius	persius dusky wing	1990	S2	G5	SC/N	
Hemidactylium scutatum	four-toed salamander	1998	S3	G5	SC/H	
Ilybius ignarus	diving beetle	1998	S3	G?	SC/N	
Lycaeides melissa samuelis	Karner blue butterfly	1994	S2S3	G5T2	SC/FL	LE
Somatochlora franklini	delicate emerald	1997	S2S3	G5	SC/N	
Plants						
Carex cumulata	clustered sedge	1959	S2	G4?	SC	
Carex folliculata	long sedge	1997	S3	G4G5	SC	
Epilobium palustre	marsh willow-herb	1958	S3	G5	SC	
Polygala cruciata	crossleaf milkwort	1959	S3	G5	SC	
Thelypteris simulata	bog fern	1997	S3	G4G5	SC	
Utricularia geminiscapa	hidden-fruited bladderwort	1997	S3	G4G5	SC	
Communities						
central poor fen	central poor fen	1997	S3		NA	
northern dry-mesic forest	northern dry-mesic forest	1997	S3	G4	NA	
northern sedge meadow	northern sedge meadow	1980	S3	G4	NA	
white pine-red maple swamp	white pine-red maple swamp	1997	S2	G3G4	NA	

BR21. HIDDEN FEN

Location

USGS 7.5' Quadrangle: Warrens West

Town-Range-Section: T20N-R2W, sections 10 and 15

Approximate Size: 75 ac.

Description of Site

This site contains several hydrologically connected but vegetatively discontinuous patches of wetland. Community types include Central Poor Fen, Alder Thicket, Tamarack Swamp, and small, managed patches of White Pine-Red Maple Swamp.

Significance of Site

Among the rare species documented here are two globally rare invertebrates. The headwaters of Pigeon Creek are just to the northwest, and the wetlands there are in good condition and should be managed in similar fashion.

Management Considerations

Maintain the integrity of site hydrology at all times, and implement forest management practices that are compatible with meeting the habitat needs of the rare invertebrate species known to be present. The Red-shouldered Hawk record is quite old (1975), and while we have no more recent records for this species here, it is desirable to try to accommodate it in future forest management scenarios by providing adequate habitat.

BR21 - Hidden Fen Element Occurrences

Scientific Name	Common Name	Date	State Rank	Global Rank	WI Status
Animals					
Buteo lineatus	red-shouldered hawk	1975	S1N,S3S4B	G5	THR
Williamsonia fletcheri	ebony bog haunter	1999	S3S4	G3G4	SC/N
Williamsonia lintneri	ringed boghaunter	1999	S2S3	G3	SC/N
Plants					
Carex cumulata	clustered sedge	1962	S2	G4?	SC

BR22. PIGEON CREEK HEADWATERS

Location

USGS 7.5' Quadrangle: Warrens West

Town-Range-Section: T20N-R2W, sections 2, 3, 10, 11, and 15

Approximate Size: 131 ac.

Description of Site

Pigeon Creek originates in valleys at the base of the Wildcat-Smrekar Ridge system, and flows through dry pine-oak forest and open wet meadows before becoming impounded near the Pigeon Creek campground. The hydrology is intact above the impoundment, and the stream is bordered by stands of native vegetation. Commercial forestry is the primary land use, with recreational use also significant.

Significance of Site

Several rare invertebrates are residents of the stream, and also use the adjoining wetlands and forest during certain stages of their life cycles.

Management Considerations

Protection of stream hydrology, water quality, and water quantity are the critical considerations. Management of the adjacent forest must leave trees at the stream corridor edge if the site is to provide secure habitat for the adult stages of the rare species present. Activities associated with road maintenance are potential management issues, as there are several stream crossings.

BR22 - Pigeon Creek Headwaters Element Occurrences

Scientific Name	Common Name	Date	State Rank	Global Rank	WI Status	US ESA Status
Animals						
Buteo lineatus	red-shouldered hawk	1975	S1N,S3S4B	G5	THR	
Cicindela patruela huberi	a tiger beetle	1997	S3	G3T2	SC/N	
Clemmys insculpta	wood turtle	1933	S3	G4	THR	
Hydrobius melaenum	a water scavenging beetle	1997	SU	G?	SC/N	
Lycaeides melissa samuelis	Karner blue butterfly	1992	S2S3	G5T2	SC/FL	LE
Somatochlora tenebrosa	clamp-tipped emerald	1997	S2	G5	SC/N	
Williamsonia fletcheri	ebony bog haunter	1999	S3S4	G3G4	SC/N	
Williamsonia lintneri	ringed boghaunter	1999	S2S3	G3	SC/N	
Plants						
Carex cumulata	clustered sedge	1962	S2	G4?	SC	
Carex folliculata	long sedge	1997	S3	G4G5	SC	
Thelypteris simulata	bog fern	1997	S3	G4G5	SC	
Communities						
white pine-red maple swamp	white pine-red maple swamp	1997	S2	G3G4	NA	

BR23. SHARPTAIL PEATLANDS

Location

USGS 7.5' Quadrangle: Millston, Warrens West

Town-Range-Section: T20N-R2W, sections 9, 10, and 16

Approximate Size: 378 ac.

Description of Site

This wetland complex occurs on the northwest side of Settlement Road opposite the Pigeon Creek State Forest Campground. Most of the wetland basin contains a large open peatland composed of sphagnum mosses, sedges, and hardhack. Parts of this wetland have been ditched and impounded. Sphagnum mosses have been harvested in other areas. In areas subjected to recent mossing, narrow-leaved sedges and white beakrush are prominent. Unmossed areas feature a greater diversity of woody species, including scattered tamarack and ericaceous shrubs.

To the northeast of the open peatland is a second growth wet forest composed of white pine and red maple. Yellow birch is a canopy associate. The understory is open, with scattered thickets of winterberry holly, huckleberry, and speckled alder. The groundlayer is composed mostly of sphagnum mosses, cinnamon fern, skunk cabbage, and goldthread. The microtopography is hummocky, and small pools of standing water are frequent in the hollows. To the northwest of the White Pine-Red Maple Swamp is a tamarack swamp.

The entire wetland complex is embedded in extensive upland forests (pine, oak, and aspen) that are managed for commercial products. Some of the pine stands were planted.

Significance of Site

Several rare species are present, among them, plants and birds. The wetlands have good overall context and size, but have been hydrologically altered by the construction of ditches and dikes. All of the forests, with the possible exception of some of the smaller tamarack stands, are second growth. Some of the forests are maturing and beginning to develop structural attributes of older forests that are uncommon or rare in this landscape.

Management Considerations

Avoid further disturbance to site hydrology. Consider allowing some of the wet white pine forest to develop characteristics of old-growth forests. Monitor impacts of past moss harvest, and do not open new areas to this activity until the effects are understood.

BR23 - Sharptail Peatlands Element Occurrences

Scientific Name	Common Name	Date	State Rank	Global Rank	WI Status
Animals					
Somatochlora incurvata	warpaint emerald	1997	S2	G4	END
Plants					
Carex folliculata	long sedge	1997	S3	G4G5	SC
Thelypteris simulata	bog fern	1997	S3	G4G5	SC
Utricularia geminiscapa	hidden-fruited bladderwort	1997	S3	G4G5	SC
Communities					
central poor fen	central poor fen	1997	S3		NA
white pine-red maple swamp	white pine-red maple swamp	1997	S2	G3G4	NA

BR24. WASHBURN MARSH

Location

USGS 7.5' Quadrangle:	Millston, Warrens West, Hatfield SW
Town-Range-Section:	T20N-R2W, sections 4, 5, 8, 9, and 32-34
	T20N-R2W, sections 4, 5, 8, 9, and 32-34
Approximate Size:	894 ac.

Description of Site

This complex consists of a large open acid peatland, which grades into shrub swamp and conifer swamp. The open peatland is dominated by sphagnum mosses, wire-leaved sedges, and ericaceous shrubs, with insectivorous plants locally common. The open peatland is drained in the northwest by a small stream that has cut through the moss and underlying peat. Moss has been repeatedly harvested from the margins of this wetland. Mossed areas are dominated by few-seeded sedge and white beakrush. Overall, the site's hydrology is intact, with no ditches or dikes noted.

The conifer swamp is composed of small tamarack and black spruce, with most trees in the 3-6" d.b.h. class, and only 9-15 feet tall. A few paper birch, red maple, and small white pine are also present. The tall shrub layer is dense, composed mostly of speckled alder, chokeberry, huckleberry, mountain holly, and winterberry holly. Common herbs and low shrubs include sphagnum mosses, three-seeded sedge, swamp dewberry, and Labrador tea. Locally, cinnamon fern and skunk cabbage are common, and become more so upslope where the canopy becomes increasingly dominated by white pine and red maple. Second-growth stands of White Pine-Red Maple Swamp forms a narrow fringe along the peatland margins in some areas.

The surrounding landscape is mostly forested, with second or third-growth stands of pine, oak, and aspen. Commercial forestry and recreation are the major land uses.

Significance of Site

This remote peatland complex is significant for its large size, intact hydrology, the quality and extent of some of its natural communities, and the number of rare and uncommon species it supports. The site contains one of the more acid open peatlands on the state forest (approaching a true bog), and one of only a few conifer swamps in which black spruce is a significant component. The natural outlet channel on the northwest side of the bog, deeply cut into a thick bed of sphagnum mosses, may be unique. Both rare plants and rare animals occur in this wetland complex. The avifauna is diverse and includes several uncommon or rare species. Among the avian residents are Sandhill Crane, Northern Harrier, LeConte's Sparrow, Yellow-bellied Flycatcher, and Yellow-rumped Warbler. The state-threatened Henslow's Sparrow was recorded from this wetland during June, 1981, but could be relocated here or at any other site on the BRSF during the present survey.

Management Considerations

Protection of site hydrology is of paramount importance. In particular, care should be taken to avoid disturbing the unusual peatland outlet channel in the northwestern portion of the site. A moratorium on moss harvest has been requested within ¼ mile of this drainage, owing to the presence of rare species there. At other locations, the removal of moss should be permitted only from areas that have previously been subjected to harvest. Maintaining forested conditions around the wetland is important for a number of sensitive species, and should include patches of older conifers. The boundary of the established State Natural Area should be examined, and as warranted, reconfigured to better represent and protect the natural features present.

BR24 - Washburn Marsh Element Occurrences

Scientific Name	Common Name	Date	State Rank	Global Rank	WI Status	US ESA Status
Animals						
Ammodramus leconteii	Le Conte's sparrow	1997	S2B,SZN	G4	SC/M	
Botaurus lentiginosus	american bittern	2001	S3B,SZN	G4	SC/M	
Clemmys insculpta	wood turtle	1933	S3	G4	THR	
Dendroica kirtlandii	Kirtland's warbler	1989	SAN	G1	SC/M	LE
Somatochlora incurvata	warpaint emerald	1997	S2	G4	END	
Plants						
Carex cumulata	clustered sedge	1959	S2	G4?	SC	
Carex folliculata	long sedge	1997	S3	G4G5	SC	
Thelypteris simulata	bog fern	1997	S3	G4G5	SC	
Utricularia geminiscapa	hidden-fruited bladderwort	1997	S3	G4G5	SC	
Communities						
open bog	open bog	1997	S4	G5	NA	
tamarack (poor) swamp	tamarack (poor) swamp	1997	S3	G4	NA	

BR25. STANTON PINES

Location

USGS 7.5' Quadrangle: Millston

Town-Range-Section: T20N-R2W, sections 7, 8, 17, and 18

Approximate Size: 240 ac.

Description of Site

This wetland complex consists of intergrading Tamarack Swamp and White Pine – Red Maple Swamp Communities. The tamarack swamp occurs in the western part of the wetland with one extension into the wet pine-maple forest swamp. It consists of a closed to semi-open stand of 5-9" in diameter tamaracks, with an understory containing Canada bluejoint, tag alder, bunchberry, starflower, swamp raspberry, woolgrass, and pink lady's-slipper. The pine-maple swamp to the east is dominated by white pine, red maple, and tamarack and has recently been selectively logged for white pine. In the understory, sphagnum mosses, cinnamon fern, and skunk cabbage are abundant.

This site is embedded in a matrix of managed upland forest (mostly dry types on sandy soils) composed of mixtures of pine, oak, and aspen, as well as some pine plantations. Recreation is also important, as evidenced by hunting tree stands within this site.

Significance of Site

This site is remote and hydrologically intact, but recent selective logging has opened the canopy of the pine forest and altered stand structure. Compared with other forests of this type in the ecoregion, there is potential for restoration here. The White Pine-Red Maple Swamp community has a limited statewide distribution, supports rare disjunct plant species, and has high potential to support rare animals if left relatively undisturbed and well buffered.

Management Considerations

Protection of site hydrology and maintenance of high canopy closure are two of the key management needs if the site is to support sensitive species. Avoiding the creation of excess forest edge when managing the surrounding uplands is an important contextual consideration.

BR25 - Stanton Pines Element Occurrences

Scientific Name	Common Name	Date	State Rank	Global Rank	WI Status
Animals					
Atrytonopsis hianna	dusted skipper	1994	S2?	G4G5	SC/N
Clemmys insculpta	wood turtle	1933	S3	G4	THR
Plants					
Carex cumulata	clustered sedge	1959	S2	G4?	SC
Carex folliculata	long sedge	1997	S3	G4G5	SC
Thelypteris simulata	bog fern	1997	S3	G4G5	SC
Communities					
northern dry-mesic forest	northern dry-mesic forest	1981	S3	G4	NA
tamarack (poor) swamp	tamarack (poor) swamp	1997	S3	G4	NA
White Pine-Red Maple Swamp	white pine-red maple swamp	1997	S2	G3G4	NA

BR26. LOWER PIGEON CREEK BARRENS

Location

USGS 7.5' Quadrangle: Millston

Town-Range-Section: T20N-R2W, sections 16, 17, and 20

Approximate Size: 42 ac.

Description of Site

Level sands on the south side of lower Pigeon Creek are vegetated with a brushy stand of cutover jack pine-scrub oak that contains small, scattered openings. Within these openings and along logging access roads that cross the site are patches of sand prairie vegetation that includes plants such as lupine, prairie phlox, little bluestem, June grass, rock cress, birdfoot violet, and prairie buttercup. The western portion of the site has been planted to red pine.

Significance of Site

Several rare butterflies have been documented here, including the Karner blue butterfly and the frosted elfin.

Management Considerations

The rapid re-growth of woody vegetation will close in the barrens openings rendering the habitat unsuitable for the rare lepidoptera dependent on sun-loving prairie plants. Most of the sites that support remnant sand prairie vegetation in this vicinity are roadsides or other sorts of rights-of-way and are vulnerable to disturbance that could degrade or destroy them. Assess this site with others that contain similar features and select the most viable to actively manage to promote long-term habitat for sensitive species.

BR26 - Lower Pigeon Creek Barrens Element Occurrences

Scientific Name	Common Name	Date	State Rank	Global Rank	WI Status
Animals					
Callophrys henrici	henry's elfin	1997	S2	G5	SC/N
Clemmys insculpta	wood turtle	1933	S3	G4	THR
Plants					
Asclepias ovalifolia	dwarf milkweed	1997	S3	G5?	THR
Carex cumulata	clustered sedge	1959	S2	G4?	SC

BR27. STARLIGHT WETLANDS

Location

USGS 7.5' Quadrangle:	Warrens West
Town-Range-Section:	sections 2
	sections 18 and 19
	sections 13, 14, 22-26, 34, and 35
Approximate Size:	2058 ac.

Description of Site

This large wetland complex is located south of CTH O, west of Starlight Road, and several miles northeast of Interstate 94. A cranberry farm and an artificial impoundment are located immediately to the southwest of the site.

The open fen ("Central Poor Fen") community is a large peatland dominated by a narrow-leaved sedge (*Carex oligoperma*) over a dense carpet of sphagnum moss. Woody species such as hardhack, swamp dewberry, and cranberries are also common. The more accessible portions of this community have a history ofrepeated sphagnum harvest. Recently mossed areas are presently composed of white beakrush and few-seeded sedge, over bare peat. In some areas there are extensive patches of the broad-leaved sedge (*Carex utriculata*). The margins of the open wetlands support scattered small tamarack and, occasionally, jack pine. These species also occur as "islands" of small trees. More extensive stands of these swamp conifers, some with a substantial component of black spruce, are found within the peatland's interior. Animals resident in the open peatlands include Savanna Sparrow, Sedge Wren, Sandhill Crane, and Northern Harrier.

The black spruce-tamarack swamp communities occur primarily in the southeastern portion of the wetland basin. Characteristic understory plants include Sphagnum spp., Labrador tea, three-seeded sedge, and huckleberry. On the upslope margins of these wet, acid conifer swamps there is a transition to a White Pine-Red Maple Swamp community. Yellow birch is present as a minor canopy component. The recent harvest of canopy pines has left most of these stands in a very open condition. These forests are established on shallow moss peat over moist sand and feature an understory of sphagnum mosses, cinnamon fern, skunk cabbage, winterberry holly, and the central Wisconsin disjuncts, Massachusetts fern and long sedge. Seepages are frequent and occasional spring runs are found within this forest type.

These wet coniferous forests are noteworthy for the number of northern species they support. Among the birds, the northern species include Red-breasted Nuthatch, Hermit Thrush, Winter Wren, Canada Warbler, Pine Warbler, Blackburnian Warbler, and Black-throated Green Warbler. Yellow-rumped warbler and Yellow-bellied Flycatcher occur locally in spruce-tamarack stands. The more obligate northern birds are most common in larger stands with high canopy closure.

North and east of the wetland communities the uplands support dry to dry-mesic forests of red oak, black oak, red maple, and white oak. Associates include bigtooth aspen and black cherry. The understory is quite open, with a tall shrub layer of American hazelnut, huckleberry, bracken fern and early blueberry in the low shrub/tall herb layer, and Penn sedge and big-leaved aster as common low herbs.

A stand of oak-dominated dry to dry-mesic hardwood forest to the east of the wetlands has a cohort of large oaks (to ca 24" d.b.h.) and features an open understory of Pennsylvania sedge, bracken fern, and

early blueberry. The relatively sparse sapling-tall shrub stratum includes American hazelnut and small white pine. A very rare native grass was collected in this stand. Widely scattered large red pines occur in this stand.

Significance of Site

This site is large and contains a diverse mosaic of communities representative of the Central Sands. At least portions of these communities are relatively intact in terms of their structure and composition.

The wetlands support a number of rare plant species, including hidden-fruited bladderwort, long sedge, bog fern, yellow screwstem, crossleaf milkwort. The presence of Canada ricegrass in dry hardwood forest is of potential significance, as this is the only extant documented station in central Wisconsin and the species is very rare in the north.

Among the animals, rare invertebrates occur in the open fen. Many regionally uncommon birds are summer residents, with "northern" species of neotropical migrants especially well-represented. Several rare birds are residents, as well.

Management Considerations

Protection of site hydrology is essential, and it is especially important to protect the intact headwaters area of Beltz Creek, including the adjoining forest. The impacts of periodic moss harvest are not well understood, and additional information regarding the impacts of moss harvest is needed to make appropriate management recommendations. Given the size, diversity, and relatively intact nature of this complex, consideration should be given to designating a significant portion of it for special management. The site has high potential to conserve both rare and representative natural communities and species.

The remaining stands of relatively intact black spruce-tamarack swamp and White Pine-Red Maple Swamp support the greatest numbers of sensitive forest species and these should be retained wherever possible.

BR27 - Starlight Wetlands Element Occurrences

Scientific Name	Common Name	Date	State Rank	Global Rank	WI Status	US ESA Status
Animals						
Aeshna verticalis	green-striped darner	1997	S3	G5	SC/N	
Clemmys insculpta	wood turtle	1933	S3	G4	THR	
Hydroporus badiellus	a predaceous diving beetle	1997	S3?	G?	SC/N	
Lycaena epixanthe	bog copper	2001	S2S3	G4G5	SC/N	
Sistrurus catenatus catenatus	eastern massasauga rattlesnake	1992	S2	G3G4T3T4	END	C
Somatochlora franklini	delicate emerald	1997	S2S3	G5	SC/N	
Plants						
Bartonia virginica	yellow screwstem	1958	S3	G5	SC	
Carex cumulata	clustered sedge	1959	S2	G4?	SC	
Carex folliculata	long sedge	1998	S3	G4G5	SC	
Epilobium palustre	marsh willow-herb	1958	S3	G5	SC	
Polygala Cruciata	Crossleaf Milkwort	1959	S3	G5	SC	
Thelypteris Simulata	Bog Fern	1997	S3	G4G5	SC	
Utricularia Geminiscapa	Hidden-Fruited Bladderwort	1997	S3	G4G5	SC	
Communities						
Black Spruce Swamp	Black Spruce Swamp	1997	S3?	G5	NA	
Central Poor Fen	Central Poor Fen	1997	S3		NA	
Northern Dry-Mesic Forest	Northern Dry-Mesic Forest	1997	S3	G4	NA	

Scientific Name	Common Name	Date	State Rank	Global Rank	WI Status	US ESA Status
Northern Sedge Meadow	Northern Sedge Meadow	1980	S3	G4	NA	
Southern Dry-Mesic Forest	Southern Dry-Mesic Forest	1997	S3	G4	NA	
White Pine-Red Maple Swamp	White Pine-Red Maple Swamp	1997	S2	G3G4	NA	

BR28. RUDD HILLS

Location

USGS 7.5' Quadrangle:	Warrens West
Town-Range-Section:	T19N-R1W, sections 6
	T19N-R2W, sections 1
	T20N-R1W, sections 31
	T20N-R2W, sections 25 and 36
Approximate Size:	362 ac.

Description of Site

The Rudd Hills consist of ramifying sandstone hills and ridges offering ca 200' of local relief, located in the southeastern corner of the Forest. The mosaic of community types includes overgrown oak barrens (Hill's and/or black oak), oak woodland, xeric stands of nearly pure red pine stands on steep north-facing slopes, very dry jack pine forest on south-facing slopes, and mixed white pine-oak forest on the lowest slopes. Periodic selective logging occurs at the site, and there are several pine plantations along its margins. In general, the understory is floristically depauperate, with bracken fern, blueberry, and huckleberry the dominant groundcover. In some places, especially in the oak woodland and in openings on the ridgelines, there is a sand prairie component with big bluestem, Indian grass, and goat's rue.

The site is bounded by Interstate 94 to the southwest, and by managed upland forest of pine, oak, and aspen elsewhere. Private lands occur to the east and south, and State Forest land to the north. The extensive wetlands of the Starlight complex are in close proximity to this site.

Significance of Site

The Rudd Hills contain a good representation of the dry forests and woodlands associated with Cambrian sandstone bedrock geology. The isolation of the site is one of its most significant features. Several rare plant species occur here. The oak woodland community in the southwestern part of the site, although small and with a closed canopy, has a very open understory and better herbaceous plant diversity than is usual for stands of this type and would benefit from prescribed burning. At least one site on Black River, preferably several, should have a management emphasis designed to retain the full complement of natural communities characteristic of the dry sandstone ridge formations. Compare the Rudd Hills with other sites containing similar features, such as the Wildcat Ridge Complex.

Management Considerations

Fire suppression and logging have favored white pine at the expense of the light dependent members of the barrens community, especially in the northwestern part of the site. Both the restoration of barrens habitat and the maintenance of dry forest communities are important here.

BR28 - Rudd Hills Element Occurrences

Scientific Name	Common Name	Date	State Rank	Global Rank	WI Status
Animals					
Clemmys insculpta	wood turtle	1933	S3	G4	THR
Plants					
Carex cumulata	clustered sedge	1959	S2	G4?	SC

Scientific Name	Common Name	Date	State Rank	Global Rank	WI Status
Solidago sciaphila	shadowy goldenrod	1997	S3	G3G4	SC
Communities					
oak barrens	oak barrens	1997	S2	G2?	NA

BR29. MILLSTON RAILROAD PRAIRIE

Location

USGS 7.5' Quadrangle: Warrens West, Millston

Town-Range-Section: T20N-R2W, sections 27, 28, and 34

Approximate Size: 14 ac.

Description of Site

This narrow strip of sand prairie is located between US Highway 12 and a railroad right-of-way, extending for slightly over a mile just southeast of Millston. Historically, it was part of a jack pine barrens and indeed a few scattered pines are present, but r.o.w. maintenance activities have removed the trees. Scattered thickets contain American hazelnut, prairie willow, and Hill's or black oak grubs. The dominant grasses and forbs are little bluestem, junegrass, flowering spurge, and species of asters, goldenrods, and milkweeds. Parts of the site are now quite weedy, and contain many exotic plants. The uncommon grass (*Tridens purpureus*) is present on bare, unstabilized sand dunes on the northeast side of the railroad adjoining Interstate 94.

The site is embedded in a matrix of commercial forest land consisting of dry, sandy Hill's oak and jack pine forests to the northeast and selectively cut White Pine – Red Maple Swamps to the southwest across Old U.S. Highway 12.

Significance of Site

The overall diversity of prairie plants at this site is fairly high. A state-threatened plant is present.

Management Considerations

Coordination with the owners and managers of the r.o.w. is needed if the site is to continue to support a complement of native prairie species. Heavy equipment was used to install a cable recently, and this led to a great deal of compaction and soil disturbance.

BR29 - Millston Railroad Prairie Element Occurrences

Scientific Name	Common Name	Date	State Rank	Global Rank	WI Status	US ESA Status
Animals						
Sistrurus catenatus catenatus	eastern massasauga rattlesnake	1992	S2	G3G4T3T4	END	C
Plants						
Asclepias ovalifolia	dwarf milkweed	1997	S3	G5?	THR	
Thelypteris simulata	bog fern	1997	S3	G4G5	SC	
Communities						
sand prairie	sand prairie	1997	S2		NA	

BR30. ROBINSON CREEK PINES

Location

USGS 7.5' Quadrangle: Millston
Town-Range-Section: T20N-R2W, sections 19, 20, and 30
Approximate Size: 261 ac.

Description of Site

This site borders a stretch of Robinson Creek just west of the Village of Millston and north of County Highway 'O' at the western boundary of the BRSF. The low terraces along the creek are vegetated by a mature wet-mesic forest of large white pine and red maple. Associates include yellow birch, paper birch, and red oak. Characteristic understory plants include sphagnum mosses, cinnamon fern, skunk cabbage, and two disjunct plants, Massachusetts fern and long sedge. Thickets of winterberry holly and speckled alder are frequent. The canopy is broken only by natural gaps due to windthrow, and large snags and coarse woody debris are present.

On the level to gently rolling sands above the terraces, the forest is dry to dry-mesic, and the canopy includes red and jack pines, along with white pine. Understory plants include American hazelnut, huckleberry, early blueberry, partridgeberry, bracken fern, wintergreen, trailing arbutus, and moccasin flower. Much of this area was logged in the mid 1990s, primarily to salvage jack pine affected by an outbreak of jack pine budworm.

Many northern birds are residents of the conifer forest, including Pine, Blackburnian, Black-throated Green, and Canada Warblers, Hermit Thrush, Winter Wren, Red-breasted Nuthatch, and Northern Raven. Pileated Woodpecker and Barred Owl are also present.

Robinson Creek and its tributary, Wyman Creek, are fast, clear, cool to coldwater streams of a rich amber hue.

The surrounding area is forested and managed for forest products. Pine plantations occur to the north and west. Lake Lee, an impounded stretch of Wyman Creek, is just upstream from this site.

Significance of Site

The site contains a significant, older stand of the geographically restricted White Pine-Red Maple Swamp community. This forest supports at least two rare plants and a resident avifauna that includes many birds more characteristic of northern Wisconsin. The entire length of Robinson Creek is significant for its aquatic biota.

Management Considerations

This site is small and linear and is, therefore, especially susceptible to the negative impacts of habitat fragmentation and stand isolation. The boundary of the existing State Natural Area should be examined carefully and adjusted as deemed appropriate to ensure that the natural features it contains are protected. Management of adjoining forested lands needs to be conducted in an especially sensitive way, and every attempt to manage this and nearby sites to the south to promote extensive areas of older conifer forest and associated sensitive wildlife species should be taken.

A number of home sites have been developed around Lake Lee, and a plan is needed to address home owners' concerns over fire threats while meeting resource protection needs.

BR30 - Robinson Creek Pines Element Occurrences

Scientific Name	Common Name	Date	State Rank	Global Rank	WI Status	US ESA Status
Animals						
Buteo lineatus	red-shouldered hawk	2001	S1N,S3S4B	G5	THR	
Chromagrion conditum	aurora damselfly	1989	S3	G5	SC/N	
Clemmys insculpta	wood turtle	1933	S3	G4	THR	
Ilybius ignarus	diving beetle	1997	S3	G?	SC/N	
Lycaeides melissa samuelis	Karner blue butterfly	1997	S2S3	G5T2	SC/FL	LE
Somatochlora elongata	ski-tailed emerald	1997	S2S3	G5	SC/N	
Sorex palustris	water shrew	1997	S2	G5	SC/N	
Stylurus scudderi	zebra clubtail	1997	S3	G4	SC/N	
Plants						
Carex cumulata	clustered sedge	1959	S2	G4?	SC	
Carex folliculata	long sedge	1985	S3	G4G5	SC	
Thelypteris simulata	bog fern	1992	S3	G4G5	SC	
Communities						
alder thicket	alder thicket	1980	S4	G4	NA	
stream--slow, soft, cold	stream--slow, soft, cold	1980	SU		NA	
white pine-red maple swamp	white pine-red maple swamp	1985	S2	G3G4	NA	

BR31. MILLSTON PINES

Location

USGS 7.5' Quadrangle: Millston

Town-Range-Section: T20N-R2W, sections 29 and 30

Approximate Size: 317 ac.

Description of Site

This site supports an extensive pine forest. The uplands are dominated by a mixture of medium-size white and red pines and various oaks. American hazelnut, bracken fern, and early blueberry are the understory dominants. Much of the site supports a wet forest of white pine-red maple, over winterberry holly, cinnamon fern, and skunk cabbage. The most intact patches contain large trees exceeding 15" d.b.h., and support sensitive wildlife species not well adapted to open canopy conditions. Large populations of two rare plants also occur here. There is generally good reproduction of white pine in both harvested and unharvested areas. The southern part of the site supports a young, brushy forest of pine, oak, and aspen.

Several open sedge meadows, poor fens, tamarack swamps, and headwaters streams occur as small patch inclusions within the matrix of pine forest.

Resident animals include many birds characteristic of extensive "northern" forests, such as Blackburnian, Pine, and Canada Warblers, Winter Wren, Northern Raven, and Red-breasted Nuthatch. A state-threatened species is also present.

Significance of Site

Selective logging has been extensive in the northern part of the site in recent years, with a consequent loss of large trees and a significant opening of the canopy. The remaining intact areas are important as they represent older successional stages of a geographically restricted community and support sensitive wildlife species. The inclusionary streams, wet meadows, and tamarack stands are essentially undisturbed, add diversity to the community mosaic, and are an important source of water for the biologically significant Robinson Creek just to the north.

Management Considerations

The wet white pine-red maple forests are better developed in this region than anywhere else in the state. Older stands have high potential to support a diverse animal community that includes rare or otherwise sensitive species, as well as two rare disjunct plant species. Older forest is currently rare on the state forest and throughout the central sands region. This type is especially important to represent in the older size/age classes because of its high values to rare species and its poor representation elsewhere in the state.

The use of heavy equipment during logging operations can easily damage soils and alter drainage patterns. Winter logging restrictions are not a guarantee that damage will not occur.

BR31 - Millston Pines Element Occurrences

Scientific Name	Common Name	Date	State Rank	Global Rank	WI Status	US ESA Status
Animals						
Buteo lineatus	red-shouldered hawk	2001	S1N,S3S4B	G5	THR	
Lycaeides melissa samuelis	Karner blue butterfly	2001	S2S3	G5T2	SC/FL	LE

Scientific Name	Common Name	Date	State Rank	Global Rank	WI Status	US ESA Status
Communities						
white pine-red maple swamp	white pine-red maple swamp	2001	S2	G3G4	NA	

BR32. PARADISE VALLEY PINES

Location

USGS 7.5' Quadrangle: Millston, Warrens West

Town-Range-Section: T20N-R2W, sections 28, 29, and 32-34

Approximate Size: 460 ac.

Description of Site

This site contains a mature White Pine-Red Maple Swamp on nearly flat, wet, peaty soils between Millston Road to the west and Woodland Road to the northeast. The canopy dominants are large to medium-size white pine and red maple. Common or characteristic understory plants are sphagnum mosses, cinnamon fern, skunk cabbage, goldthread, bluebead lily, and woodland sedges. Winterberry holly is the most common shrub, and thickets of sapling white pine are scattered throughout the stand.

At least 3 rare plant species are present, one of them represented by a huge population. Resident animals include Canada, Blackburnian, and Pine Warblers, Veery, Red-breasted Nuthatch, and Pileated Woodpecker. One state-threatened animal has been documented here.

A similar stand, formerly known as "Poison Pines" because of the poison sumac present, is located about one mile to the southeast Paradise Valley Pines – North. The two stands are separated by a cutover swamp forest of tamarack, aspen, pine, and maple.

The surrounding uplands of pine, oak, and aspen are all managed for commercial forest products.

Significance of Site

Mature stands of this geographically restricted community with intact canopies are becoming increasingly scarce. The rare plant species bog fern, straw sedge, and long sedge are present, as is the state-threatened Red-shouldered Hawk. Northern birds are also well-represented here, by species such as Northern Raven, Canada warbler, Blackburnian warbler, Black-throated Green Warbler, Hermit Thrush, and Red-breasted Nuthatch.

Management Considerations

This site could be linked with Poison Pines in a larger, landscape-scale long-term restoration project. In the short-term, the older stands of intact forest merit protection as good examples of an uncommon community, and because they afford habitat to sensitive species that is becoming increasingly scarce. The northernmost stand is very wet, with skunk cabbage particularly abundant. It would therefore be highly susceptible to damage from heavy equipment, even under winter logging only constraints.

BR32 - Paradise Valley Pines Element Occurrences

Scientific Name	Common Name	Date	State Rank	Global Rank	WI Status	US ESA Status
Animals						
Atrytonopsis hianna	dusted skipper	1997	S2?	G4G5	SC/N	
Buteo lineatus	red-shouldered hawk	2001	S1N,S3S4B	G5	THR	
Clemmys insculpta	wood turtle	1933	S3	G4	THR	
Lycaeides melissa samuelis	Karner blue butterfly	1997	S2S3	G5T2	SC/FL	LE
Plants						
Carex cumulata	clustered sedge	1959	S2	G4?	SC	
Carex folliculata	long sedge	1997	S3	G4G5	SC	
Carex straminea	straw sedge	1960	S1	G5	SC	

Scientific Name	Common Name	Date	State Rank	Global Rank	WI Status	US ESA Status
Thelypteris simulata	bog fern	1997	S3	G4G5	SC	
Communities						
northern dry-mesic forest	northern dry-mesic forest	1980	S3	G4	NA	
northern sedge meadow	northern sedge meadow	1980	S3	G4	NA	
white pine-red maple swamp	white pine-red maple swamp	2001	S2	G3G4	NA	

BR33. MILLSTON RIDGE

Location

USGS 7.5' Quadrangle:	Millston
Town-Range-Section:	T19N-R2W, sections 4 and 5
	T20N-R2W, sections 29-33 and 36
Approximate Size:	761 ac.

Description of Site

This mile-long, 300-foot high sandstone and shale ridge is located along the southern boundary of the State Forest, south of Habelman, Smothers, and Millston Roads and adjacent to Fort McCoy Military Reservation. The ridge is forested with a dense to open forest of small- to medium-diameter trees of black and/or Hill's oak, jack pine, big-toothed aspen, and paper birch, here classified as a Southern Dry Forest. The ridge has been logged in the past and active logging occurs near the base of the ridge. The shrubby understory is dominated by hazelnut and bramble, while the low shrub and herb layer has bracken fern, blueberry, Penn sedge, and huckleberry. There is also some red maple, white pine, and red oak in several north-facing, more mesic "coves." In general, however, the forest is xeric, and the north- projecting "spurs" often have very dense growth of mature jack pine. The north base of the ridge is a patchwork of recently clear-cut oak-pine stands, red pine plantations, and sandy old fields and pastures. In a broader context, the site is located in a large, sparsely populated area of forest and barrens. Two other communities occur on the southwest flank of the ridge: Oak Woodland dominated by moderate-sized white oaks with an open poor understory of Penn sedge, bracken fern, and big-leaved aster, and an Oak Barrens with a fairly rich sand prairie forb understory in the southwest corner of the site and forest. An old abandoned shale quarry occurs near the former tower lookout tower site at the west end of the ridge. The access road leading to the tower site is severely rutted and impassable.

Significance of Site

This is one of a number of high, sandstone-cored ridges that occur in the southern part of the Forest. While not as extensive as the Wildcat Mound-Smrekar Ridge complex, Millston Ridge is isolated and supports a number of rare invertebrate species and plant species. The oak barrens at the southwest base of the ridge is particularly noteworthy and, although small, is perhaps the best example of that community in the Forest, with a good structure and long sightlines (lack of understory shrubby vegetation). The understory is diverse, with many sand prairie species and a lack of a monotypic Penn sedge understory.

Management Considerations

The north-facing spurs that are densely forested with mature jack pine appear to pose a catastrophic fire threat, perhaps due in part to the suppression of smaller, more frequent fires. There appears to have been some disking and planting of red pines in the oak barrens area on the southwest side of the ridge. The oak barrens type is rare in this area, and consideration should be given to managing this area as a barrens, with the periodic use of fire. Pine plantations may not be the most appropriate use of this area.

BR33 - Millston Ridge Element Occurrences

Scientific Name	Common Name	Date	State Rank	Global Rank	WI Status	US ESA Status
Animals						
Callophrys irus	frosted elfin	1997	S1	G3	THR	
Chlosyne gorgone	gorgone checker spot	1997	S3	G5	SC/N	
Cicindela patruela huberi	a tiger beetle	1999	S3	G3T2	SC/N	
Clemmys insculpta	wood turtle	1933	S3	G4	THR	
Diadophis punctatus edwardsii	northern ringneck snake	1997	S3?	G5T5	SC/H	
Lycaeides melissa samuelis	Karner blue butterfly	2001	S2S3	G5T2	SC/FL	LE
Sorex arcticus	arctic shrew	1998	S2	G5	SC/N	
Plants						
Asclepias ovalifolia	dwarf milkweed	1997	S3	G5?	THR	
Carex cumulata	clustered sedge	1959	S2	G4?	SC	
Solidago sciaphila	shadowy goldenrod	1997	S3	G3G4	SC	
Talinum rugospermum	prairie fame-flower	1997	S3	G3G4	SC	
Viola fimbriatula	sand violet	1997	S2	G5	END	
Communities						
oak barrens	oak barrens	1997	S2	G2?	NA	
oak woodland	oak woodland	1997	S1?		NA	
southern dry forest	southern dry forest	1997	S3	G4	NA	
southern dry-mesic forest	southern dry-mesic forest	1997	S3	G4	NA	
white pine-red maple swamp	white pine-red maple swamp	2001	S2	G3G4	NA	

BR34. CASTLE MOUND PINE FOREST

Location

USGS 7.5' Quadrangle: Black River Falls
Town-Range-Section: T21N-R4W, sections 23 and 24
Approximate Size: 152 ac.

Description of Site

The primary feature of this site is an old growth white pine-red pine forest (Northern Dry-Mesic Forest) covering the slopes and crest of a mile long, 200-foot-high castellated Cambrian sandstone butte that runs northwest-southeast. The groundlayer is composed primarily of sapling white pine and red maple, huckleberry, early blueberry, common wintergreen, and bracken fern. The lower slopes are more mesic than those occurring at higher elevations, where bedrock is at or very near the surface. The dry sandstone cliff exposures support mosses, lichens, and ferns, including several rare plant species. The resident avifauna includes many northern species, including Pine, Black-throated Green, and Blackburnian Warblers, Red-breasted Nuthatch, Hermit Thrush, Northern Raven, and Solitary Vireo.

A State Forest campground occurs at the northwest base of the Mound, with managed dry-mesic oak and pine forests to the south and west. New housing developments on the outskirts of the city of Black River Falls are being constructed just north of the Mound.

Significance of Site

This is arguably the finest stand of old growth pine in the Central Sand Plains. Several rare plants occur here, and several resident species of northern birds are near their southern breeding limits. The Cooper's hawk is also a nesting species.

Management Considerations

Castle Mound is designated as a State Natural Area. The most pressing management problem is the continued spread of the pernicious exotic shrub glossy buckthorn, which is common toward the north end of the mound on the lower, more mesic slopes of the old growth pine forest. Eradication will be difficult, but it should be a management priority. Lesser problems are the impacts of the high volumes of human foot traffic on the Mound, resulting in volunteer trails, soil erosion and compaction, vegetative denudation at higher elevations, and graffiti on the rocks. The major conservation limitation of the site is its isolation from other significant forested areas, its close proximity to roads on three sides, and the growth of the city of Black River Falls. Wherever feasible, steps should be taken to reduce edge, increase forest block size, and curb incompatible use.

BR34 - Castle Mound Pine Forest Element Occurrences

Scientific Name	Common Name	Date	State Rank	Global Rank	WI Status
Animals					
Buteo lineatus	red-shouldered hawk	1974	S1N,S3S4B	G5	THR
Plants					
Lycopodium porophilum	rock clubmoss	1997	S3	G4	SC
Solidago sciaphila	shadowy goldenrod	1997	S3	G3G4	SC
Viola fimbriatula	sand violet	1991	S2	G5	END
Communities					
northern dry-mesic forest	northern dry-mesic forest	1997	S3	G4	NA

LOWER BLACK RIVER MACROSITE

Primary Sites

- Catfish Eddy Bottoms/Perry Creek Gorge (BR35)
- Hawk Island Complex (BR36)
- Manchester Bottoms (BR37)

Description of Macrosite

This site borders the Black River and the lower gorge of a tributary stream, Perry Creek, along the western edge of the state forest annex just to the south of the city of Black River Falls. Dry-mesic forests dominated by white and red pine occur on sandy slopes bordering the river terraces, and occasionally on the higher ridges near the river. In several locations the slopes are drained by numerous spring seeps, several of which coalesce into small streams that run to the Black River. The lower terraces support floodplain forest, with small patches of more mesic hardwoods present. Blackhawk Island, the largest state-owned island within the State Forest, is included within the site boundary. The gorge of Perry Creek, a short tributary of the Black River, features wet, moss-covered sandstone cliffs.

Significance of MacroSite

The site includes mature stands of several forest communities that have the potential to support sensitive species. These are known to support both rare plants and rare animals. The mossy seeps within Perry Creek gorge support rare invertebrates. A rare reptile uses portions of the site and adjoining areas as a breeding area. This site borders a free-flowing stretch of the Black River, which runs unimpeded from Black River Falls to its junction with the Mississippi approximately 50 miles downstream.

Management Considerations

These include increasing the area of older forest where feasible, and extending protection along both banks of the Black River. Allowing the development of old-growth forest characteristics in appropriate forest communities is important. The steep sandy slopes are fragile, especially where laced with spring seepages, and would benefit from additional protection. The aggressive exotic shrub, glossy buckthorn (*Rhamnus frangula*) has gained a foothold in the northern part of the site and measures to control are needed. The restoration of cleared lands on Blackhawk Island and at several locations elsewhere within the site should be considered. Use of the park at the mouth of Perry Creek should be monitored, particularly the foot trail that ascends Perry Creek gorge.

BR35. CATFISH EDDY BOTTOMS / PERRY CREEK GORGE

(Lower Black River Macrosite)

Location

USGS 7.5' Quadrangle:	Black River Falls
Town-Range-Section:	T21N-R4W, sections 25-27, 34 and 35
Approximate Size:	260 ac.

Description of Site

This site occurs along the east bank of the Black River south of Black River Falls, including Perry Creek Gorge, the Black River floodplain above and below the mouth of Perry Creek, and the spring and seepage laced slopes to the north of Perry Creek.

Just below the mouth of Perry Creek is a mature, cathedral-like stand of older floodplain forest composed of silver maple, green ash, river birch, hackberry, and basswood. This stand possesses old-growth characteristics, including large trees, standing snags, coarse woody debris, and tip-up mounds. The undulating ridge-and-swale microtopography supports several distinctive herbaceous associations. Spring ephemerals carpet the ridges, while the swales contain a flora composed of characteristic floodplain forest species such as ostrich fern, wood nettle, green dragon, cardinal flower, and false dragonhead. Soils are silts and sands. No recent logging has occurred here. Litter from floods ranges up to a depth of a few feet in debris piles. The site's natural flood regime is altered by the operation of an upstream dam at Black River Falls. A forest of similar composition and structure borders the Black River to the north, along the edge of the state forest boundary.

The lower reaches of Perry Creek flow through a deep narrow gorge flanked by moist Cambrian sandstone cliffs. The gorge is forested with large to medium-size white pine, red oak, red maple, and paper birch. Characteristic understory plants include bracken fern, early blueberry, Canada mayflower, and large-leaved aster. Recent floods and windstorms have toppled trees, resulting in local erosion of the gorge slopes. Rare invertebrates and rare plants are present.

To the north of the Perry Creek mouth are forested slopes and terraces. White and red pines, red oak, white oak and red maple are typical canopy dominants. Site conditions are generally dry-mesic, but due to the undulating topography and the numerous springs and seepages present, wet-mesic stands of white pine-red maple are also present, as are small patches of black ash swamp, alder thicket and sedge meadow. Several of the springs form runs that flow westward to the Black River through miniature sandstone gorges. The site was selectively logged within the past twenty years, and though the canopy was not greatly disturbed, logging equipment disrupted some of the seepage areas. More problematically, the aggressive invasive shrub glossy buckthorn (*Rhamnus frangula*) is now locally established, and appears to have spread along logging trails.

The adjacent uplands to the east are nearly level, sandy, and dry, and the vegetative cover ranges from young to medium-aged stands of xeric pine-oak forest and pine plantations. A public park with boat landing and a large parking lot, mowed lawn, foot trails, and footbridge across the mouth of Perry Creek occurs in the center of the site. A landfill and an airport occur just to the southeast, and a large active gravel mine is situated to the west across the Black River. Private residences are located just northeast of the site.

Significance of Site

This site contains small but significant stands of high quality floodplain forest, which are integral components of an ecologically valuable river corridor. The dry-mesic pine-oak forests in Perry Creek

Gorge and along the Black River just to the north of Perry Creek are in generally good condition and host a high diversity of valuable microsites, including moist cliffs, seepages, springs, and spring runs. Some of these features support rare plants and invertebrates. The Louisiana Waterthrush, a state special concern species, was found here at two locations in 2001. The potential for additional rare species, e.g. birds, is high, and appropriate surveys should be conducted in the future.

Management Considerations

The site is an integral part of an ecologically important major river corridor. Community diversity is high, and a number of rare plant and animal species have been documented. Considerations for management include:

- maintaining high canopy closure and allowing the continued development of old-growth characteristics in both the forested portions of the floodplain and in the dry-mesic white pine-oak forests
- increased protection for the steep and fragile slopes along Perry Creek to the north along the Black River
- protection of site hydrology, to maintain both water quality and water quantity.
- monitoring use in the developed areas
- control of invasive species
- affording a high level of protection to features capable of supporting populations of rare species
- increasing forest stand size, and reducing high contrast edge.

BR35 - Catfish Eddy Bottoms/Perry Creek Gorge Element Occurrences

Scientific Name	Common Name	Date	State Rank	Global Rank	WI Status
Animals					
Cymbiodyta blanchardi	a water scavenging beetle	1998	SU	G?	SC/N
Ochrotrichia riesi	a purse casmaker caddisfly	1998	S1?	G?	SC/N
Ophiogomphus sp 1 nr *aspersus*	barrens snaketail	1998	S2	G2	SC/N
Seiurus motacilla	louisiana waterthrush	2001	S3B,SZN	G5	SC/M
Plants					
Callitriche heterophylla	large water-starwort	1958	S2	G5	THR
Lycopodium porophilum	rock clubmoss	1997	S3	G4	SC
Viola fimbriatula	sand violet	1960	S2	G5	END
Communities					
floodplain forest	floodplain forest	2001	S3	G3?	NA
moist cliff	moist cliff	2001	S4		NA
northern dry-mesic forest	northern dry-mesic forest	2001	S3	G4	NA

BR36. HAWK ISLAND COMPLEX

(Lower Black River Macrosite)

Location

USGS 7.5' Quadrangle:	Black River Falls, Shamrock, and Stenulson Coulee
Town-Range-Section:	20N-R4W, sections 4 and 5
	T21N-R4W, sections 22, 27, 28, 33, and 34
Approximate Size:	431 ac.

Description of Site

This island in the Black River is accessible by water, or, when waters are low, by driving a vehicle across a shallow channel at the end of Haugstad Road. The island is low (maximum 15-20 feet above the Black River) and consists mostly of alluvium (moist sand to loamy sand) arranged in a ridge-and-swale manner. The majority of the island is second-growth Floodplain Forest, but an abandoned field and a red pine plantation occur on the southwestern part of the island.

The dominant trees of the floodplain forest community are silver maple, green ash, and river birch. Important understory plants include wood nettle, ostrich fern, cutleaf coneflower, and many sedges. The highest ridges on the eastern part of the island are more mesic and support open to very brushy stands of sugar maple, basswood, and hackberry. Remnant butternut trees are associated with the more mesic sites, and this disappearing species is distributed at scattered locations around Hawk Island. The mesic ridges sometimes support lush stands of spring ephemerals. On portions of the island, and the adjoining mainland, there is a dense understory of Missouri gooseberry and prickly ash, probable indicators of past heavy grazing. Dutch elm disease eliminated most of the large elms, but saplings and small trees of both American and red elms are still present.

A narrow terrace immediately to the east of the island contains floodplain forest that is developing old-growth characteristics. Patches of rich ground flora are present. A white pine plantation occurs on the northern part of this terrace. The adjoining slopes support a mature dry-mesic forest composed of oaks, maples, and basswood, with scattered groves of large white pine. Low sandstone cliffs border the narrow channel along the southeastern part of Hawk Island. Spring seepages are associated with the cliffs and toeslopes.

The surrounding landscape includes additional floodplain forest, old pastureland, the Black River Falls airport, and, to the east, scattered residences. An active gravel mine and farms are located on the west side of the Black River.

Significance of Site

The rare plants Assiniboine sedge, Short's rock-cress, ginseng, and butternut are present. Rare animals documented here in 2001 include Red-shouldered Hawk, Cerulean Warbler, and Prothonotary Warbler. Though logging, grazing, and farming have occurred in the not-too-distant past, patches of older intact forest occur on both the island and the adjoining east bank. This includes stands of mature dry-mesic white pine and hardwood forest on the upland slopes east of the island. State ownership along the Black River south of Black River Falls is patchy and tends to be linear. This site has high potential to provide secure habitat for sensitive animal species that will be difficult to accommodate elsewhere in the southern part of the Forest without a major boundary expansion.

Management Considerations

The site is an integral part of the forested Black River corridor, and provides important habitat for many animal and plant species. The sensitive animal species present are all associated with larger stands of mature forest, with high canopy closure. Management considerations include allowing the development of old-growth characteristics, increasing forest patch size, the eventual removal of the pine plantations, encouraging reforestation of the abandoned openings with appropriate native species, and restricting vehicular access by gating the road leading down to the ford at the north end of the island. Illegal dumping of trash has been a problem here in the past.

Very few stands of older intact floodplain forest or southern mesic forest are adequately protected in this part of the state, and this is an important management consideration here. Exotic, potentially invasive, species have become established in some areas. These include day lily, celandine poppy, and glossy buckthorn.

BR36 - Hawk Island Complex Element Occurrences

Scientific Name	Common Name	Date	State Rank	Global Rank	WI Status
Animals					
Buteo lineatus	red-shouldered hawk	2001	S1N,S3S4B	G5	THR
Clemmys insculpta	wood turtle	1991	S3	G4	THR
Dendroica cerulea	cerulean warbler	2001	S2S3B,SZN	G4	THR
Laccobius reflexipennis	a predaceous beetle	1997	S1S2	G?	SC/N
Protonotaria citrea	prothonotary warbler	2001	S3B,SZN	G5	SC/M
Seiurus motacilla	louisiana waterthrush	2001	S3B,SZN	G5	SC/M
Plants					
Carex assiniboinensis	assiniboine sedge	1997	S3	G4G5	SC
Communities					
floodplain forest	floodplain forest	2001	S3	G3?	NA
northern dry-mesic forest	northern dry-mesic forest	2001	S3	G4	NA

BR37. MANCHESTER BOTTOMS

(Lower Black River Macrosite)

Location

USGS 7.5' Quadrangle: Melrose

Town-Range-Section: T20N-R4W, sections 5 and 8

Approximate Size: 85 ac.

Description of Site

This site supports a mesic to wet-mesic hardwood forest on terraces with ridge and swale topography just above the floodplain of the Black River in the extreme southwest corner of the BRSF. The forest canopy contains a mix of medium-sized sugar maple, basswood, hackberry, white ash, and bitternut hickory, with no clear dominants and no conifers present. The forest has been selectively cut several times and is missing structural features characteristic of older maple-basswood forests. The shrub layer is dominated by Missouri gooseberry, possibly the result of past grazing by cattle. The herbaceous layer has numerous spring ephemerals such as yellow trout-lily, woodland phlox, and Dutchman's-breeches, along with many woodland sedge species. Several abandoned river oxbows within the site contain small ephemeral ponds. Just to the north of the forest is a State Forest canoe campground with marginal road access, and a mature pine plantation. Floodplain forest occurs to the west; the east and south include mix of abandoned pasture and second-growth hardwood forest with one private residence.

Significance of Site

This site is most significant for its rich mesic hardwood forest. No such stands are currently protected on the BRSF. This is a very rare type in the Central Sands ecoregion, where it occurs sporadically on terraces of the larger rivers. It is reminiscent of forests in the southernmost two tiers of Wisconsin counties, rather than those of central Wisconsin. No rare plant species were noted save for a few dead and dying butternut trees. Wild Turkey and Cooper's Hawk are among the avian residents of the site, and a Red-Shouldered Hawk nests in the vicinity. Ecological significance is presently tempered by site isolation, past logging, and grazing. However, restoring a forested corridor along the Black River would have many ecological benefits, such as connecting patches of isolated forest, increasing forest block size, providing dispersal corridors, providing habitat for sensitive species, and preventing potentially damaging developments.

Management Considerations

Considerations include allowing the development of old-growth characteristics, reducing the dominance of Missouri gooseberry, and extending protection to adjoining forests outside of the current BRSF boundary. Additional surveys of private lands to the west and south are desirable, pending the outcome of future landowner contact.

BR37 - Manchester Bottoms Element Occurrences

Scientific Name	Common Name	Date	State Rank	Global Rank	WI Status
Animals					
Apalone Mutica	midland smooth softshell turtle	1997	S3	G5	SC/H
Buteo Lineatus	red-shouldered hawk	1976	S1N,S3S4B	G5	THR
Communities					
Southern Mesic Forest	southern mesic forest	1997	S3	G3?	NA

RECENT FINDINGS

This section provides a brief summary of features examined since the bulk of biotic inventory efforts on the Black River State Forest were concluded in 2000. More recent field surveys have yielded several new occurrence records for natural communities and rare species. Following data processing during the winter of 2003, maps and associated tables will be revised to reflect any boundary revisions and the locations of new element occurrences.

Stanton Creek Pines

T20N-R2W-part of N1/2NE1/4 of section 17: This is a new site that contains a small stand of older red and white pine forest on a peninsula between two headwaters creeks. The major wetland communities bordering the streams are primarily (Central) Poor Fen and Alder Thicket. At least 2 rare plant species are present, and the potential for rare animals is high. It is important to retain this stand for old-growth or other special designation because a high percentage of other stands in the vicinity have been logged recently and it will be many decades before they recover and develop the structural characteristics of a mature, intact forest.

Arbutus Pine-Oak Forest

T22N-3W-part of the NW1/4 of section 1: This site includes an upland stand of dry-mesic mixed forest (red pine-white pine-white oak-black oak) that grades into a Wet-Mesic Forest (white pine-red maple-yellow birch) that borders a small headwaters stream that enters Lake Arbutus. A state threatened animal is resident here and the potential is high for other rare species. Additional survey work is desirable to refine boundaries and complete a more thorough evaluation of the site for rare species. This site does **not** include nearby stands to the south that were recently evaluated for timber harvest.

Overmeyer Hills

T20N-R2Wparts of sections 12 and the S1/2 of 1: This site needs boundary refinements owing to recent timber harvests and additional field survey by BER staff that have yielded more detailed delineations of the most critical areas to maintain. Small but significant stands within the site are developing old-growth characteristics that are now rare in this landscape and merit serious consideration for retention through the master planning process. In the current Forest Master Plan (WDNR 1983), this is a designated “Wild Area,” with amendments that provide for additional access to timber.

Miscellaneous

Potential for Pine Barrens management is relatively high in much of the area between Morrison Creek (east to approximately the Oxbow Pond on Morrison Creek) and Dike 17 Wildlife Area. Some areas between White Creek and Morrison Creek might also be considered for the incorporation of barrens management into a landscape scale planning unit. This would potentially ensure the viability of a now globally rare plant community, and many populations of rare and declining species, including the federally Endangered Karner blue butterfly and the regionally rare Sharp-tailed Grouse. We would not recommend the conversion of unproductive “scrub” oak or jack pine stands in this area to red pine plantations without a more detailed assessment of ecological potential. The same broad perspective could be applied to areas west of Battle Point Flowage to Wildcat Road, where it would be possible to establish connections with the existing Bauer-Brockway State Natural Area and Wauzee Park.

A number of other sites were surveyed by BER staff following the 2002 Black River State Forest’s annual planning meeting. Rare species were found at several of these sites. Associated management issues can be resolved at the State Forest staff level and should not affect the master planning process.